

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 110 A 720 LS 375 RQ 250/1100PA 658

Komb.-Nr. 0 402 046 251 = MAN-Nr. 2-7377
 0 402 046 253 = MAN-Nr. 2-7379
 0 402 046 297 = MAN-Nr. 2-7499

supersedes 1,85
 company: MAN
 engine: D 2566 MT (F) (1)
 206 kW (280 PS)
 MAN-Nr. 2-7499
 D 2566 MTF-Trope.
 196 kW/2200 min⁻¹
 (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,0 - 3,1}
 (2,95-3,15) mm (from BDC) cyl. 6; RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,4+0,1	14,7-14,9	0,4(0,75)			
250	7,3-7,5	1,1-1,6	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point	Test specifications			Setting point	Test specifications			rev/min	Control rod travel mm
1	2	3	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	11	12
600	19,2-20,8	600	20,0	11,4	1145-1160	250	7,4	100	min.8,9	1100	12,4-12,5
VH = max. 46°				4,0	1190-1220			250	7,3-7,5	700	13,1-13,2
				1350	0-1,0			355-395 = 2,0		940	12,9-13,1
										1015	12,5-12,8

Torque-control travel on flyweight assembly dimension a = 0,3 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
LDA 1100	0,7 bar 147,0-149,0 (144,0-152,0)	-	LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)	100	225,0-245,0 (221,0-249,0)
LDA 700	0,7 bar 157,0-161,0 (154,0-164,0)		LDA 500	0 bar 110,0-113,0 (108,0-116,0)		

Checking values in brackets

B Governor Settings

(2)

MAN 11,1 q 19

-2
2

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev./min	Control rod travel mm	rev./min	Control rod travel mm	Control rod travel mm	rev./min	rev./min	Control rod travel mm	Control rod travel mm	rev./min	Control rod travel mm	rev./min	Control rod travel mm	rev./min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12				
600	19,2-20,8	600	20,0	11,4	1145-1160	250	7,4	100	min. 8,9	1100	12,4-12,5				
VH =	max. 46°			4,0	1190-1220			250	7,3 - 7,5	700	13,3-13,4				
				1350	0-1,0			355-395 = 2,0		870	13,0-13,2				
										970	12,5-12,8				

Torque control travel on flyweight assembly dimension a **0,2** mm Speed regulation At **1145-1160 min⁻¹** 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev./min	cm ³ /1000 strokes	rev./min	rev./min	cm ³ /1000 strokes	rev./min	Control rod travel cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
(2)		-	LDA	0,2 bar	100	215,0-235,0
LDA	0,7 bar		500	115,0-119,0		(211,0-239,0)
1100	139,0-141,0			(112,0-122,0)		
	(138,0-142,0)		LDA	0 bar		
LDA	0,7 bar		500	103,0-107,0		
700	150,0-154,0			(101,0-111,0)		
	(147,0-157,0)					

Checking values in brackets

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = **500** rev./min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	diminution difference (1)
PES 6 P..LS 375 + RQ..PA 335 DR	0,70	0 0,20 0,32	13,1 - 13,2 11,3 - 11,4 11,7 - 12,1 12,6 - 12,7

Notes

(1) when n

rev./min and gauge pressure

bar (= maximum full-load control rod travel)

En

Test Specifications Fuel Injection Pumps ② and Governors

PES6P 110 A 720 LS 375 RQ 300/1100 PA 658-10
Komb.-Nr. 0 402 046 309
MAN-Nr. 2-7549

supersedes 7.84
company: MAN
engine: D2566 MLUM/US
191 kW/2200₁
min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,0-3,1} (2,95-3,15) mm (from BDC)RW = 9,0-12,0 mm, Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,0+0,	14,7-15,0	0,4 (0,75)			
300	6,8-7,0	1,5-2,0	0,45 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600 VH=	19,2-20,8 max. 46°	600	20,0	10,8 4,0 1350	1155-1170 1195-1225 0-1,0	300	7,5	100 300 380-420	min. 8,4 6,8-7,0 =2,0	750 1100 880 975	12,0-12,1 11,2-11,3 11,7-11,9 11,3-11,6

Torque-control travel on flyweight assembly dimension a = 0,3 mm Speed regulation: At 1155-1170 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ -1000 strokes 2	rev/min 3	rev/min 4	cm ³ -1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 750	0,7 bar 147,0-150,0 (144,5-152,5)	-	LDA 600	0,2 bar 145,0-149,0 (142,0-152,0)	100	225,0-245,0 (221,0-249,0)
LDA 1100	0,7 bar 135,0-141,0 (132,0-144,0)		LDA 500	0 bar 120,0-123,0 (117,5-125,5)	300	15,0-20,0 (12,5-22,5)

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 27 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6P..LS 375 +RQ..PA 658-10	0,70	0	12,0-12,1
		0,20	11,1-11,2
		0,15	11,8-11,9
			11,3-11,6

Notes:
 (1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1r5

2. Edition

En

PES6P110A720LS375 RQV 250-1100 PA 669
Komb.-Nr. 0 402 046 272 = MAN-Nr. 2-7425
0 402 046 273 = MAN-Nr. 2-7433

supersedes 7.84

company: MAN

engine: D 2566 MTF
206 kW/2200 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0-3,1$
(2,95-3,15) mm (from BDC) $7,1-6$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,4+0,1	14,6-14,9	0,4(0,75)			
250	7,3-7,5	1,0-1,5	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in .
Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1130	15,2-17,8	-	-	-	ca. 15	100	min. 8,9	300	1,7-2,0
ca. 66	11,4 4,0 1350	1140-1150 1235-1265 0-1,0				365-480	250	7,3-7,5	850	6,0-6,2
						③			1000	8,3

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 146,0-149,0 (143,5-151,5)	1140-1150*	LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)	100	225,0-245,0 (221,0-249,0)	1100	12,4+0,1
LDA 700	0,7 bar 157,0-161,0 (154,0-164,0)		LDA 500	0 bar 110,0-113,0 (107,5-115,5)	250	10,0-15,0 (7,5-17,5)	700	13,3+0,1
							900	13,0+0,2
							1000	12,5+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.85

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 r 5

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6P..LS375 +RQV..PA 669	0,70	0	13,3-13,4
		0,20	11,3-11,4
		0,32	11,8-11,9
			12,6-12,8

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 r 4

3. Edition

PE 6 P 110 A 320 LS 375 RQV 250-1100 PA 674

Komb.-Nr. 0 402 046 282

supersedes 5.84

company: MAN

 engine: D 2566 MTE
 184 kW/2200 min⁻¹
 MAN-Nr. 2-7208

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $3,0 - 3,1$
 $(2,95 - 3,15)$ mm (from BDC) 7yl 6: RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	12,8+0,1	15,9-16,2	0,4(0,75)			
250	6,9-7,1	1,1-1,6	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 13	100	min. 8,5	300	1,4-1,7
ca. 46	10,5 4,0 1350	1140-1150 1205-1235 0 - 1,0					250 340-	6,9-7,1 400=2,0	800 1100	5,0-5,2 7,9

Torque control travel a = 1,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 3	Fuel delivery characteristics high idle speed 5a		Starting fuel delivery idle switching point 6		Torque-control travel 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 800	0,7 bar 159,0-162,0 (156,5-164,5)	1140-1150*	LDA 500	0,17 bar 122,0-126,0 (119,0-129,0)	100	215,0-235,0 (211,0-239,0)	800 1100	12,8+0,1 11,5+0,1
1100	136,0-140,0 (133,0-143,0)		LDA 500	0 bar 97,0-100,0 (94,5-102,5)	250	11,0-16,0 (8,5-18,5)	900 1000	12,4+0,2 11,7+0,3
650	160,0-164,0 (157,0-167,0)							

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.35

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 r 4 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 P..LS 375 + RQV..PA 674	0,70	0 0,28 0,11	12,8-12,9 10,2-10,3 12,1-12,2 10,7-11,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 HIP 11,9a1
2. Edition

En

PE6P 110 A 720 RS 380
Komb.-Nr. 0 401 846 501

RQV 250-1000 PA 434-2

supersedes 3.84
company Hispavinsa
engine: BSR 36 C

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8 - 2,9 \\ (2,75 - 2,95) \end{matrix}$ mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	15,5+0,1	18,8 - 19,0	0,4(0,75)			
250	8,5-8,7	2,4 - 3,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

Test specifications

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	-	-	-	ca. 16	100 250	min. 10,0 8,5- 8,7	250 350 430 1040	1,1-1,2 2,4-3,1 3,8-4,0 7,9
ca. 65	14,5 4,0 1300	1040-1050 1175-1205 0-1,0				350-480				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1000	0,7 bar 188,0-190,0 (185,0-193,0)	1040-1050*	LDA 500	0 bar 141,0-144,0 (138,5-146,5)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.85

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A9

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D. Adjustment Test for Manifold Pressure Compensator

HIP 11,9a1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS 380 +RQV..PA 434-2	0,70	0 0,45 0,31	15,5-15,6 13,2-13,3 15,0-15,1 13,7-13,9

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 P 120 A 720 LS 388 RQ 250/1100 PA 658-7
 Komb.-Nr. 0 402 046 263, 0 402 046 262
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 7.83
 company: MAN
 engine: D 2566 MK
 206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,0-3,1}{(2,95-3,15)}$ mm (from BDC) Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	11,4+0,1	17,8-18,0	0,5(0,9)			
250	6,2-6,4	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 4		rev/min 5		rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
600	19,2-20,8	600	20,0	9,2	1145-1160	250	6,3	100	min.7,8	1100	10,2-10,3												
	VH=max.46°			4,0	1180-1210			250	6,2-6,4	750	11,9-12,0												
				1400	0-1,0			350	390=2,0	840	11,5-11,7												
										985	10,5-10,8												

Torque-control travel on flyweight assembly dimension a = 0,45 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/mm 7	
LDA	0,7 bar			-		LDA	0,31 bar			100	205,0-225,0		
750	178,0-180,0 (175,0-183,0)					500	131,0-137,0 (128,0-140,0)				(201,0-229,0)		
LDA	0,7 bar					LDA	0 bar						
1100	160,0-166,0 (157,0-169,0)					500	104,0-106,0 (101,0-109,0)						
						LDA	0,7 bar						
						650	171,0-177,0 (166,0-180,0)						

Checking values in brackets

A11

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 16

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 388 +RQ..PA 658-7	0,31	0,70	10,3-10,4
		0	11,4-11,5
		0,43	9,2-9,3
			10,9-11,1

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 21,9 b 2

2. Edition

En

PE 12 P 120 A 320 LS 3819-1 RQV 350-1150 PA 493-3 superseded by 95
 1-5-9-8-3-4-11-10-2-6-7-12 company: Daimler-Benz
 0-15-60-75-120-135-180-195-240-255-300-315° ±0,5° (±0,75°) engine: OM 424 LA

Values only apply to test nozzle-and-holder assembly Komb.Nr. 0 401 840 719
 1 688 901 019 and fuel-injection test tubing 1 680 750 067
 All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4, 0-4, 1} (3,95-4,15) mm (from BDC) ; RW = 9,0-12,0 mm; Zyl.12

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	12,1+0,1	18,0-18,2	0,5(0,9)			
350	4,8-5,0	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1180	15,2-17,8	-	-	-	ca. 12	100	min.6,2	350	2,2-2,3
ca. 65	11,1 4,0 1350	1190-1200 1235-1265 0-1,0				400-600	350	4,5-4,7	510 1150 1200	3,2-3,5 7,5-8,8 9,0

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,7 bar 180,0-182,0 (177,0-185,0)	1190-1200*	LDA 650	0,7 bar 179,0-185,0 (176,0-188,0)	100	150,0-170,0 (146,0-174,0)	-	-
LDA 1150 **	0,7 bar 134,0-138,0 (131,0-141,0)		LDA 500	0 bar 131,0-133,0 (128,0-136,0)	350	4,5-4,7 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

** Set at the reduced-delivery stop.

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Tested 1990-4-19

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE12P..LS3819-1 + RQV..PA493-3	0,70	0 0,54 0,47	12,1-12,2 10,1-10,3 11,4-11,5 10,6-10,8

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 21,9 e 2
2. Edition

En

PE 12 P 110 A 320 LS 3820-1 RQV 350-1150 PA 378-1
Komb.-Nr. 0 401 840 709
1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

superseded 2.84
company: Daimler-Benz
engine: OM 424
309 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,0-4,1 \\ (3,95-4,15) \end{matrix}$ mm (from BDC) $\begin{matrix} 7 \\ 12 \end{matrix}$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,4+0,1	12,2-12,4	0,4(0,8)			
350	7,7-7,9	1,4-2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1200	15,2-17,8	-	-	-	ca. 19	100	min.9,0	300	1,2-1,4
ca. 64	10,4 4,0 1300	1170-1180 1235-1265 0-1,0				375-485	300	7,4-7,6	580 870 1150	3,6-3,9 5,2-5,5 7,8

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	122,0-124,0 (119,0-127,0)	1170-1180*	600	96,0-100,0 (93,0-103,0) 90,0-94,0 (87,0-97,0) **	100	130,0-140,0 (126,0-144,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

** Set at the reduced-delivery stop.

9.85

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 21,9 f

2. Edition

En

PE 12 P 120 A 320 LS 3825 RQV 350-1050 PA 693

1 - 5 - 9 - 8 - 3 - 4 - 11 - 10 - 2 - 6 - 7 - 12
 0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315° ± 0,5°
 (± 0,75°)

supersedes 10.84

company: Daimler-Benz

engine: OM 424 A

Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067
 All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke		mm (from BDC)				
4,0-4,1 (3,95-4,15)						
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1050	9,7-9,8	14,8-15,0	0,5(0,9)			
350	4,5-4,7	1,4-2,0	0,8(1,2)			
600	---	C, Sp. 4u.5	0,8(1,2)			
500	---					

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1180	15,2-17,8	-	-	-	ca. 12	100	min. 6,2	300	1,0-1,2
							350	4,5-4,7	550	3,4-3,6
									800	4,8-5,0
									1050	7,1
ca. 58	8,7	1085-1095					350-600			
	4,0	1165-1195								
	1300	0-1,0								

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery		Rotational-speed limitation		Fuel delivery characteristics		Starting fuel delivery		Torque-control	
Control-rod stop		intermediate speed		high idle speed		idle switching point		travel	
Test oil temp. 40°C (104°F)									
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
LDA	0,7 bar	1085-1095*	LDA	0,7 bar	100	150,0-170,0	-	-	
1050	148,0-150,0 (145,0-153,0)		600	146,0-152,0 (143,0-155,0)		(146,0-174,0)			
			LDA	0 bar					
			500	128,0-130,0 (125,0-133,0)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.85

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A16

A16

D. Adjustment Test for Manifold Pressure Compensator

MB 21,9 f

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 12 P..LS 3825 +RQV..PA 693	0,70	0 0,36 0,32	9,7-9,8 9,3-9,5 9,5-9,6 9,4-9,6

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 n 12

1. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1425 AB 1214 L

supersedes -

company: Daimler-Benz

Komb.-Nr. 9 400 085 247

engine: OM 352 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

 Port closing at prestroke ^{2,2-2,3}
 (2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,2+0,1	7,6 - 7,7	0,3 (0,5)			
300	7,6-7,8	1,2 - 1,6	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1420	16,0-19,4	-	-	-	ca.15	100	min. 8,5	300	1,1-1,5
ca. 61	10,2	1440-1450					300	7,6-7,8	600	3,1-3,3
	4,0	1560-1590					690	-7,50=2,0	1000	4,5-4,7
	1750	0 - 1,0							1440	8,6

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1400	0,2 bar 75,5 - 76,5 (73,5 - 78,5)	1440-1450*	LDA 500	0,2 bar 58,5 - 60,5 (56,0 - 63,0)	100	70,0-80,0 =13,8-14,2 mm RW	-	-
			LDA 500	0 bar 51,0 - 54,0 (49,5 - 56,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.85

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A18

A18

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 n 12

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2293 +RSV..AB 1214 L	0,20	0 0,12 0,09	11,2 - 11,3 10,6 - 10,7 11,0 - 11,1 10,7 - 10,9

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 18,3 g

1. Edition

En

PE 10 P 120 A 320 LS 3831 RQ 750 PA 635-3
 1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4
 0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
 company: Daimler-Benz
 engine OM 423 LA
 278 kW
 Komb.-Nr. 0 401 849 716

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{4,0 - 4,1}{(3,95-4,15)}$ mm (from BDC) $\frac{zyl. 10}{zyl. 10}$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0+0,1	19,3-19,5	0,5(0,8)			
300	4,9-5,1	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min 1 2		Full-load speed regulation Setting point rev/min 3 4 5 6				Idle speed regulation Setting point rev/min 7 8 9 10				Torque control rev/min 11 12	
①		④				⑤				③	
-	-	-	-	11,0 4,0 840	750-755 778-791 0-1,5	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 750-755 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 2		Control rod stop rev/min 3	Fuel delivery characteristics rev/min 4 5		Starting fuel delivery Idle speed rev/min 6 7	
②		③a	③b		⑥	
700	193,0-195,0 (190,0-198,0)	-	-	-	100	160,0-180,0 (156,0-184,0)

Checking values in brackets

9.85

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 17,4 c

1. Edition

En

PE 10 P 120 A 520/4 LS 3833 RQ 750 PA 663-7
1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4
0-17-72-99-144-171-216-243-288-315° + 0,5° (+ 0,75°)

supersedes -

company: MAN

engine: D 2540 LE
352 kW

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067 MAN-Nr. 2-7666

Komb.-NR. 0 401 849 721

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,2-4,3}
(4,15-4,35) mm (from BDC)RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	13,3+0,1	22,9 - 23,1	0,5 (0,9)			
300	5,8-6,0	1,4 - 2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
-	-	-	-	12,3 4,0 950	750-755 780-793 0 -1,0	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 750 - 755 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery idle speed ⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
700	229,0 - 231,0 (226,0 - 234,0)	-	-	-	-	-

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 SCA 11,0 u 12
1. Edition

En

PE 6 P 120 A 720 RS 7001 W RQ 200/1100 PA 713
Komb.-Nr. 0 402 646 819 W
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes -
company: Scania
engine: DS 1128

Please note instructions on sheet 2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{5,0-5,1}{(4,95-5,5)}$ mm (from BDCRW = 9,0 - 12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,6+0,1	18,0 - 18,2	0,6 (0,9)			3,3 ± 0,1
225	4,4-4,6	1,3 - 1,7	0,3 (0,6)			(3,0 - 3,5) **

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of sider PRG check rev/min 1		Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3			Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Idle speed regulation Setting point rev/min 7		Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	Torque control rev/min 11		Control rod travel mm 12
1300	15,2-17,8	1300	16,5	11,6 4,6 1400	1145-1160 1270-1300 0 - 1,0	225	4,5	100 225 300	min. 5,9 4,4-4,6 -340=2,0	-	-	-	-	-	-	

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145 - 1160 min 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2	Control rod stop rev/min 3	Fuel delivery characteristics rev/min 4	cm ³ /-1000 strokes 5	Starting fuel delivery idle speed rev/mm 6	cm ³ /1000 strokes/mm 7
LDA 700	0,5 bar 180,0 - 182,0 (177,0 - 185,0)	-	LDA 1100	0,5 bar 178,0 - 186,0 (176,0 - 188,0)	100	240,0 - 290,0 = 20,0 - 21,0 mm RW	
			LDA 500	0 bar 120,0 - 124,0 (118,0 - 126,0)			

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 7001 W + RQ..PA 713	0,50	0 0,28 0,17	12,6 - 12,7 10,3 - 10,4 11,4 - 11,5 10,5 - 10,7

Notes:
 (1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 4. 30.8.1984
- Start of fuel delivery-engine: 11° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 2,9 - 3,1 mm.

Test Specifications Fuel Injection Pumps ② and Governors

PE 8 P 120 A 920/4 LS 7003 RQ 900 PA 695
 Komb.-Nr. 9 400 087 298
 1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je 45° + 0,5° (+ 0,75°)
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes -
 company: Saab Scania
 engine: DS 14
 293 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 5,0-5,1 \\ (4,95-5,15) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,8-0,1	18,6 - 18,8	0,6(0,9)			3,3 ± 0,1 (3,0 - 3,5)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	11,8 4,0 1000	900-905 941-955 0 -1,0	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: AI $900-905 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ -1000 strokes 2	rev/min 3	rev/min 4	cm ³ -1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm Control rod travel 7
850	186,0 - 188,0 (183,0 - 191,0)	-	-	-	100	240,0 - 290,0 = 20,0 - 21,0 mm RW

Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,2 g

2. Edition

En

PE 8 P 120 A 920/4 LS 7002 RQV 275-1000 PA 547-3

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 015 Komb.-Nr. 0 402 648 810

supersedes 10.84

company: Scania
DS 1406

engine: LKW 142-Kran

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{5,0-5,1}{(4,95-5,15)}$ mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2+0,1	18,7 - 18,9	0,6 (0,9)			3,3 \pm 0,1
275	4,4-4,6	1,0 - 1,4	0,3 (0,6)			(3,0 - 3,5) **

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1090	15,2-17,8	-	-	-	ca. 8	100 275 320	min. 5,9 4,4-4,6 -380=2,0	275 350 430 500 1040	1,0-1,1 1,8-2,7 3,3-4,4 4,8-5,0 8,1
ca. 60	12,2 4,0 1250	1040-1050 1190-1220 0 - 1,0								

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 187,0-189,0 (184,0-192,0)	1040-1050 *	LDA 1000 LDA 500	0,9 bar 183,0-191,0 (181,0-193,0) 0 bar 137,0-141,0 (135,0-143,0)	100	240,0-290,0 =20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

0.85

Testoil-ISO 4113
BOSCH

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B1

B1

D. Adjustment Test for Manifold Pressure Compensator

SCA 14,2 g - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P..LS 7002 + RQV..PA 547-3	0,90	0	13,2 - 13,3
		0,35	11,3 - 11,4
		0,23	12,8 - 12,9
			11,9 - 12,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 2.11.83
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-4-2-6-3-7-8

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 2,9 - 3,1 mm.

Test specifications

Fuel injection pumps and governors

WPP 001/4 MTU 26,5 b1

2. Edition

En.

PE 8 ZW 160/120 RS1027/11 RQV 300-900 ZWA 51 R
Komb.-Nr. 0 402 438 025

Replaces 1.85
Firm: MTU
Engine: 396

1-2-6-3-4-5-7-8 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$
Note VDT-W-A11g./7 !

Testoil-ISO 4113

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke $\begin{matrix} 2,5-2,6 \\ (2,45-2,65) \end{matrix}$ mm (from BDC) Zyl. 8

Rotational speed min ⁻¹ 1	Control-rod travel mm 2	Fuel delivery Average value cm ³ /1000 strokes 3	Difference in fuel delivery cm ³ /1000 strokes 4	Fuel delivery Checking values cm ³ /1000 strokes 5	Spring pre-tension (torque-control valve)
600	18	513,0-523,0	16,0 (24,0)	510,0-526,0	
600	9	140,0-160,0	12,0 (18,0)	135,0-165,0	
300	9	72,0-92,0	11,0 (16,0)	67,0-97,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated speed			Medium rated speed			Lower rated speed			Torque control	
Control lever deflection degrees 1	mm min ⁻¹ 2	Control-rod travel mm min ⁻¹ 3	Control lever deflection degrees 4	mm min ⁻¹ 5	Control-rod travel mm 6	Control lever deflection degrees 7	mm min ⁻¹ 8	Control-rod travel mm 9	mm min ⁻¹ 10	mm 11
ca. 79	900	18,0-19,0	ca. 27	375	8,0	ca. 21	300	8,0	-	-
ca. 79	700	18,0-19,0	(max. 30)	200	14,3-17,2		200	10,8-14,2		
	17,0	905-925		300	10,3-11,8		400	3,9-5,0		
	4,0	1000-1050		500	2,5-3,7		485	590 = 0		
	1100	0 - 2,0		590	720 = 0					

Torque control travel a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed	Fuel-delivery characteristics		Starting fuel delivery	
min ⁻¹ 1	cm ³ /1000 strokes 2	min ⁻¹ 3	min ⁻¹ 4	cm ³ /1000 strokes 5	min ⁻¹ 6	cm ³ /1000 strokes 7
-	not known	Idle stop 300 RW = 8,0 mm	-	-	-	-

Checking values in brackets

9.85

BOSCH

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Test specifications

Fuel injection pumps and governors

En.

PE 6 ZW 160/120 RS 1028/11 RQUV 300-900 ZWA 51 R
Komb.-Nr. 0 402 436 058

Replaces 1.85
Firm: MTU
Engine: 396

1- 2- 3 - 4 - 5 - 6
0-45-120-165-240-185 ° ± 0,5 ° (± 0,75 °)

Note VDT-W-A11g./7 !

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke $\overset{2,5-2,6}{(2,45-2,65)}$ mm (from BDC) Zyl. 6

Rotational speed min ⁻¹ 1	Control-rod travel mm 2	Fuel delivery Average value cm ³ /1000 strokes 3	Difference in fuel delivery cm ³ /1000 strokes 4	Fuel delivery Checking values cm ³ /1000 strokes 5	Spring pre-tension (torque-control valve)
600	18,0	513,0-523,0	16,0 (24,0)	510,0-526,0	
600	9,0	140,0-160,0	12,0 (18,0)	135,0-165,0	
300	9,0	72,0-92,0	11,0 (16,0)	67,0-97,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated speed			Medium rated speed			Lower rated speed			Torque control	
Control lever deflection degrees 1	mm min ⁻¹ 2	Control-rod travel mm min ⁻¹ 3	Control lever deflection degrees 4	mm min ⁻¹ 5	Control-rod travel mm 6	Control lever deflection degrees 7	mm min ⁻¹ 8	Control-rod travel mm 9	mm min ⁻¹ 10	mm min ⁻¹ 11
ca. 79	900	18,0-19,0	ca. 27	375	8,0	ca. 21	300	8,0	-	-
ca. 79	700	18,0-19,0	(max. 30)							
	17,0	905-925		200	14,3-17,8		200	10,8-14,2		
	4,0	1000-1050		300	10,3-11,8		400	3,9-5,0		
	1100	0 - 2,0		500	2,5-3,7		485	590 = 0		
				590	720 = 0					

Torque control travel a = - mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed	Fuel-delivery characteristics		Starting fuel delivery	
min ⁻¹ 1	cm ³ /1000 strokes 2	min ⁻¹ 3	min ⁻¹ 4	cm ³ /1000 strokes 5	min ⁻¹ 6	cm ³ /1000 strokes 7
-	not known !	300 RW = 8,0 mm	-	-	-	-

Checking values in brackets

Test specifications

Fuel injection pumps and governors

En.

PE 6 ZW 160/120 RS 1028/11 RQUV 300-1200 ZWA 51 R

Replaces 1.85

Komb.-Nr. 0 402 436 057

Firm: MTU

Engine: 6 V 331

1- 2- 3 - 4 - 5 - 6
 0-45-120-165-240-285° ± 0,5° (± 0,75°)
 Note VDT-W-Allg./7 !

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke $\begin{matrix} 2,5-2,6 \\ (2,45-2,65) \end{matrix}$ mm (from BDC) $\begin{matrix} 2,6 \\ 2,6 \end{matrix}$

Rotational speed min ⁻¹	Control-rod travel mm	Fuel delivery Average value cm ³ /1000 strokes	Difference in fuel delivery cm ³ /1000 strokes	Fuel delivery Checking values cm ³ /1000 strokes	Spring pre-tension (torque-control valve)
1	2	3	4	5	
600	18,0	513,0-523,0	16,0 (24,0)	510,0-526,0	
600	9,0	140,0-160,0	12,0 (18,0)	135,0-165,0	
300	9,0	72,0-92,0	11,0 (16,0)	67,0-97,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated speed			Medium rated speed			Lower rated speed			Torque control	
Control lever deflection degrees	mm min ⁻¹	Control-rod travel mm min ⁻¹	Control lever deflection degrees	min ⁻¹	Control-rod travel mm	Control lever deflection degrees	min ⁻¹	Control-rod travel mm	min ⁻¹	Control-rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 84	1200	18,0-19,0	ca. 27	375	8,0	ca. 21	300	8,0	-	-
	17,0	1205-1225	(max.30)	200	14,3-17,2		200	10,8-14,2		
	4,0	1320-1380		300	10,3-11,8		400	3,9-5,0		
	1400	0-2,0		500	2,5-3,7		485-590	= 0		
				590-720	= 0					

Torque control travel a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed	Fuel-delivery characteristics		Starting fuel delivery	
min ⁻¹	cm ³ /1000 strokes	min ⁻¹ Idle stop	min ⁻¹	cm ³ /1000 strokes	min ⁻¹	cm ³ /1000 strokes
1	2	3	4	5	6	7
-	not known	300 RW = 8,0 mm	-	-	-	-

Checking values in brackets

Test specifications

Fuel injection pumps and governors

En.

PE 12 ZW 150/120 RS 1029
Komb.-Nr. 0 402 430 012

RQV 300-1200 ZWA 51 R

Replaces 2.83

Firm: MTU

Engine: 12 V 331

1-12- 9- 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6
0-45-60-105-120-165-180-225-240-285-300-345 ° $\pm 0,5$ ° ($\pm 0,75$ °)

Note VDT-W-A11g./7 !

Testoil-ISO 4113

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke ^{2,5-2,6} (2,45-2,65) mm (from BDC) Zy1.12

Rotational speed min ⁻¹ 1	Control-rod travel mm 2	Fuel delivery Average value cm ³ /1000 strokes 3	Difference in fuel delivery cm ³ /1000 strokes 4	Fuel delivery Checking values cm ³ /1000 strokes 5	Spring pre-tension (torque-control valve)
1000	18,0	501,0-511,0	15,0 (22,0)	498,0-514,0	
600	9,0	110,0-130,0	15,0 (22,0)	107,0-133,0	
300	9,0	46,0-72,0	10,0 (15,0)	43,0-75,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated speed			Medium rated speed			Lower rated speed			Torque control	
Control lever deflection degrees 1	mm min ⁻¹ 2	Control-rod travel mm min ⁻¹ 3	Control lever deflection degrees 4	min ⁻¹ 5	Control-rod travel mm 6	Control lever deflection degrees 7	min ⁻¹ 8	Control-rod travel mm 9	min ⁻¹ 10	Control-rod travel mm 11
ca. 84	1200	18,0-19,0	ca. 27	375	8,0	ca. 21	300	8,0	-	-
ca. 84	1200 17,0 4,0 1400	18,0-19,0 1205-1225 1320-1380 0 - 2,0	(max. 30)	200 300 500 590-720 = 0	14,3-17,2 10,3-11,8 2,5-2,7		200 400 485-590 = 0	10,8-14,2 3,9-5,0		

Torque control travel a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed	Fuel-delivery characteristics		Starting fuel delivery	
min ⁻¹ 1	cm ³ /1000 strokes 2	min ⁻¹ 3	min ⁻¹ 4	cm ³ /1000 strokes 5	min ⁻¹ 6	cm ³ /1000 strokes 7
-	not known	Idle stop 300 RW = 8,0 mm	-	-	-	-

Checking values in brackets

9/85

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Test specifications

Fuel injection pumps and governors

En.

PE 12 ZW 160/120 RS 1029/11 RQUV 300 - 900 ZWA 51 R

Replaces 2.85

Komb.-Nr. 0 402 430 010

Firm: MTU

1-12- 9- 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6

Engine: 396

0-45-60-105-120-165-180-225-240-285-300-345° ± 0,5° (± 0,75°)

Note VDT-W-Allg./7 !

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke ^{2,5 - 2,6}
(2,45-2,65) mm (from BDC/Zyl. 12)

Rotational speed min ⁻¹	Control-rod travel mm	Fuel delivery Average value cm ³ /1000 strokes	Difference in fuel delivery cm ³ /1000 strokes	Fuel delivery Checking values cm ³ /1000 strokes	Spring pre-tension (torque-control valve)
1	2	3	4	5	
600	18,0	513,0-523,0	22,0 (33,0)	510,0 - 526,0	-
600	9,0	140,0-160,0	12,0 (18,0)	135,0 - 165,0	
300	9,0	72,0- 92,0	11,0 (16,0)	67,0 - 97,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated speed			Medium rated speed			Lower rated speed			Torque control	
Control lever deflection degrees	mm	Control-rod travel mm min ⁻¹	Control lever deflection degrees	min ⁻¹	Control-rod travel mm	Control lever deflection degrees	min ⁻¹	Control-rod travel mm	min ⁻¹	Control-rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 79	900	18,0-19,0	ca. 27 (max. 30)	375	8,0	ca. 21	300	8,0	-	-
ca. 79	700	18,0-19,0		200	14,3-17,2		200	10,8-14,2		
	17,0	905 - 925		300	10,3-11,8		400	3,9- 5,0		
	4,0	1000 - 1050		500	2,5- 3,7		485	- 590 = 0		
	1100	0 - 2,0		590	- 720 = 0					

Torque control travel a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed		Fuel-delivery characteristics		Starting fuel delivery	
min ⁻¹	cm ³ /1000 strokes	min ⁻¹	Idle stop	min ⁻¹	cm ³ /1000 strokes	min ⁻¹	cm ³ /1000 strokes
1	2	3		4	5	6	7
-	not known	300		-	-	-	-
		RW = 8,0 mm					

Checking values in brackets

Test bench 4110

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,5e

2. Edition

En

Testoil-ISO 4113

VA 4/100 H 1150 CR 12-10

supersedes 8.73
company IHC
engine D 206

Pre-stroke setting **0,5 mm ± 0,04**
plunger lift of 0.36 mm related to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	2,5-3,5 mm		
1.2 Supply pump pressure	800	4,5-5,0 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	61,5-62,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	370	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind. 90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1230	21,0-29,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	350-520(320-550)	600	800	1020-1150
	mm	Start	0,9-1,9(0,6-2,2)	(2,2-3,8)	4,7-5,4(4,4-5,7)
2.2 Supply pump	rev/min	200		800	1150
	kp/cm ²	1,5-2,0(1,3-2,2)		(4,3-5,2)	5,8-6,3(5,6-6,5)
Overflow delivery	rev/min	500			1150
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1250-1310 (1230-1330) 1230 1150-1170 1200 800	0 Start 66,0-69,0 (65,0-70,0) (61,0-63,0)	
	Stop	1150	0	
Idle stop	Full	420-500 (400-520) 370	0 (11,0-19,0)	
	Start	100	mind. 90,0	
End stop		220-300		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 40 \pm 8^\circ$</p> <p>$\gamma = 30 - 8^\circ$</p> <p>$\delta = 60 + 8^\circ$</p>	<p>Pump</p> <p>Dimension IV = 2,0 mm</p> <p>Dimension V = 24,6 mm</p>

Test Specifications Distributor-type Fuel-injection Pumps

VE 3/10 F 1800 L 33-1

0 460 403 002

Overflow temperature 45° C

supersedes
company Bukh
engine: DV 36 ME

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm \pm 0,02 (0,04)

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1600	4,1-4,5 mm		
1.2 Supply-pump pressure	1600	6,4-7,0 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	1600	37,5-38,5 cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery without charge-air pressure	1600	37,5-38,5 cm ³ /1000 strokes		2,5 (3,0)
1.4 Idle regulation	500	6,0-10,0 cm ³ /1000 strokes		
1.5 Full-speed regulation	1850	17,0-23,0 cm ³ /1000 strokes		
1.6 Start	100	min. 38,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	--	--		

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	1000	1600	1800
	mm	0,8-1,6 (0,5-1,9)	(3,6-5,0)	5,1-5,9 (4,8-6,2)
2.2 Supply pump	n = rev/min	400	1800	
	bar (kgf/cm ²)	1,7-2-3	7,2-7,8	
Overflow delivery	n = rev/min	500	1800	
	cm ³ /10 s	55-110 (40-125)	55-110 (40-125)	

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1970	max. 2,0	
	1900	5,0	
	1850	(16,0-24,0)	
	1750	34,7-37,3 (33,7-38,3)	
	1600	(35,7-40,3)	
	1000	39,0-42,0 (38,2-42,8)	
	600	31,5-35,5 (30,5-36,5)	
switch-off	1800	0	
Idle stop	500	(4,0-12,0)	
	530	min. 2,0	
	600	max. 2,0	
End stop	450	min. 43,0	
	550	max. 43,0	
2.4 Solenoid	cut-in voltage min. 10,0 V rated voltage 12 V		

3. Dimensions <small>for assembly and adjustment mm</small>	
Designation	
K	--
KF	5,9-6,1
MS	0,9-1,1
SVS	max. 4,2
XK	20,2-22,2
XL	12,2-15,5
Observations pushing electromagnet	

Test Specifications Distributor-type Fuel-injection Pumps

VE 5/10 F 2400 L 35 (P)
0 460 405 001; ... 002

supersedes 9.82
company: VWV
engine: 153 Audi 100

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,14 mm ± 0,02 (0,04)

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1400	2,4-2,8 mm		
1.2 Supply-pump pressure	1400	5,0-5,6 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	1400	32,5-33,5 cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery without charge-air pressure	375	6,0-10,0 cm ³ /1000 strokes		2,0 (3,0)
1.4 Idle regulation	2650	6,0-12,0 cm ³ /1000 strokes		
1.5 Full-speed regulation	100	min.50,0 cm ³ /1000 strokes		
1.6 Start	-	-		
1.7 Load-dependent port-closing	-	-		

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1400 (1,9-3,3)	2400 5,1-5,9(4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 2,8-3,4		2400 7,3-7,9
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)		2400 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2650 2500 2400 1400 750	(5,0-13,0) (24,0-32,0) 27,0-29,0 (25,7-30,3) (30,7-35,3) 23,3-26,3 (21,8-27,8)	
switch-off			
electr.	400	0	
Idle stop	500 375	max. 3,0 (4,0-12,0)	
End stop	400 500	min. 15,5 max. 23,5	

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,7-5,9
MS	1,7-1,9
SVS	max. 3,0
XK	18,5-20,5
XL	9,0-12,5

Observations

2.4 Solenoid

cut-in voltage min. 10,0 V
rated voltage 12 V.

Test Specifications Distributor-type Fuel-injection Pumps

VE 5/10 F 2400 L 35-2 (P)
0 460 405 003; ... 004

supersedes 10.82
company: VWV
engine: 153 Audi 5000 (USA)

Overflow temperature 45° C

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

Pre-stroke setting 0,14 mm ± 0,02 (0,04)

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1400	2,4-2,8 mm		
1.2 Supply-pump pressure	1400	5,0-5,6 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	1400	32,5-33,5 cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery without charge-air pressure	375	6,0-10,0 cm ³ /1000 strokes		2,0 (3,0)
1.4 Idle regulation	2650	6,0-12,0 cm ³ /1000 strokes		
1.5 Full-speed regulation	100	min.50,0 cm ³ /1000 strokes		
1.6 Start	-	-		
1.7 Load-dependent port-closing	-	-		

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	1000	1400	2400
	mm	1,3-2,1(1,0-2,4)	(1,9-3,3)	5,1-5,9(4,8-6,2)
2.2 Supply pump	n = rev/min	500		2400
	bar (kgf/cm ²)	2,8-3,4		7,3-7,9
Overflow delivery	n = rev/min	500		2400
	cm ³ /10 s	55-138(40-153)		55-138(40-153)

2.3 Fuel deliveries	Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop		2650	(5,0-13,0)	
		2500	24,5-31,5 (24,0-32,0)	
		2400	27,0-29,0 (25,7-30,3)	
		1400	(30,7-35,3)	
		750	23,3-26,3 (21,8-27,8)	
switch-off electr.		400	0	
Idle stop		500	max. 3,0	
		375	(4,0-12,0)	
Endanschlag		400	min. 15,5	
		500	max. 23,5	
2.4 Solenoid	cut-in voltage min. 10,0 V rated voltage 12 V.			

3. Dimensions	Designation	for assembly and adjustment mm
	K	-
	KF	5,7-5,9
	MS	1,7-1,9
	SVS	max. 3,0
	XL	18,5-20,5
	XL	9,0-12,5

Observations

Test Specifications Distributor-type Fuel-injection Pumps

VE 5/10 F 2400 L 35-6 (P)

0 460 405 027;

028

Overflow temperature 45° C

supersedes 10.82

company: VWV

engine: 153 Audi 100 Aut.

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,14 mm ± 0,02 (0,04)

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1400	2,4-2,8 mm		
1.2 Supply-pump pressure	1400	5,0-5,6 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	1400	32,5-33,5 cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery without charge-air pressure	375	6,0-10,0 cm ³ /1000 strokes		2,0 (3,0)
1.4 Idle regulation	2650	6,0-12,0 cm ³ /1000 strokes		
1.5 Full-speed regulation	100	min. 50,0 cm ³ /1000 strokes		
1.6 Start	--	--		
1.7 Load-dependent port-closing	--	--		

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1400 (1,9-3,3)	2400 5,1-5,9 (4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 2,8-3,4	2400 7,3-7,9	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)	2400 55-138 (40-153)	

2.3 Fuel deliveries				3. Dimensions <small>for assembly and adjustment mm</small>	
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)	Designation	
End stop	2650	(5,0-13,0)		K	--
	2500	24,5-31,5 (24,0-32,0)		KF	5,7-5,9
	2400	27,0-29,0 (25,7-30,3)		MS	1,7-1,9
	1400	(30,7-35,3)		SVS	max. 3,0
	750	23,3-26,3 (21,8-27,8)			
switch-off mech. electr.	2400	0		XK	18,5-20,5
	400	0		XL	9,0-12,5
Idle stop	500 375	max. 3,0 (4,0-12,0)		Observations Mechanical Stop control	
End stop	400 500	min. 15,5 max. 23,5			
2.4 Solenoid	cut-in voltage min. 10,0 V rated voltage 12 V.				

⑥

Test Specifications

Distributor-type Fuel-injection Pumps

46

WPP 001/4 RVI 3,6 a 1

3. Edition

En

VE 4/12 F 1500 R 51-1
0 460 424 005

Overflow temperature 45° C

supersedes 9.83
company: RVI-Renault
engine: 720 S
Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

- mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1000	3,3-3,7 mm	0,8	
1.2 Supply-pump pressure	1000	4,7-5,3 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	1000	87,5-88,5 cm ³ /1000 strokes	0,8	4,0 (4,5)
Full-load delivery without charge-air pressure	500	66,5-67,5 cm ³ /1000 strokes	0	
1.4 Idle regulation	325	14,0-20,0 cm ³ /1000 strokes	0	3,5 (4,5)
1.5 Full-speed regulation	1650	17,0-23,0 cm ³ /1000 strokes	0,8	
1.6 Start	100	min.100,0 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	-	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device LDA=0,8bar	n = rev/min mm	750 1,3-2,1(1,0-2,4)	1000 (2,8-4,1)	1500 6,1-6,9(5,8-7,2)
2.2 Supply pump LDA=0,8bar	n = rev/min bar (kgf/cm ²)	300 1,7-2,3		1500 6,7-7,3
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)		1500 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1700	max. 3,0	0,8
	1650	(15,0-25,0)	0,8
	1600	53,0-61,0 (52,0-62,0)	0,8
	1500	84,0-87,0 (82,5-88,5)	0,8
	1000	(85,0-91,0)	0,8
	750	85,0-88,0 (83,5-89,5)	0,8
	600 *	76,5-77,5 (74,0-80,0)	0,4
500	(63,2-70,8)	0	
switch-off	1500	0	
Idle stop	400 325	max. 5,0 (12,0-22,0)	
End stop	200 350	min. 90,0 max. 90,0	
2.4 Solenoid	— cut-in voltage min. 22,0 V rated voltage 24,0 V		

3. Dimensions

for assembly
and adjustment
mm

Designation	mm
K	3,2-3,4
KF	5,7-5,9
MS	1,4-1,6
SVS	max. 6,0
XK	20,1-22,1
XL	12,6-16,4

Observations
24 V Pulling
electromagnet

* LDA-stroke 4,5 mm
Use adjusting nut
(46) to correct.

B14

6A4

BOSCH

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9.85

Test Specifications Distributor-type Fuel-injection Pumps

VE 6/12 F 1350 R 64 Nozzle-and-holder assembly
0 460 426 016 1 688 901 020
172 + 3 bar

supersedes 7.84
company: IHC
engine: D 358/PC 11

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A"

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm Overflow temperature 45° C

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1150	5,2-5,6 mm		
1.2 Supply-pump pressure	1150	5,6-6,2 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	1150	84,0-85,0 cm ³ /1000 strokes		3,5 (4,5)
1.4 Idle regulation	500	14,5-20,5 cm ³ /1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	1400	44,0-50,0 cm ³ /1000 strokes		
1.6 Start	100	min. 100,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-	-		

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 1,6-2,4(1,3-2,7)	1150 (4,7-6,1)	1300 5,3-6,1(5,0-6,4)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	400 2,7-3,3		1300 6,0-6,6
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-163)		1350 55-138(40-158)

2.3 Fuel deliveries	Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop		1510	max. 1,0	
		1450	9,0-17,0 (8,0-18,0)	
		1400	(42,0-52,0)	
		1300	80,0-83,0 (78,5-84,5)	
		1150	(81,5-87,5)	
		800	77,0-81,0 (76,0-82,0)	
		500	65,0-70,0(63,7-71,3)	
switch-off		1350	0	
Idle stop		570	max. 1,0	
		520	min. 4,0	
		500	(12,5-22,5)	
End stop		250	min. 100	
		350	max. 80	
2.4 Solenoid	cut-in voltage min. 10 V rated voltage 12 V.			

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,0-1,2
SVS	max. 6,0
XK	20,2-22,2
XL	15,8-19,8

Observations

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWV 1,6 d
4. Edition

En

VE 4/9 F 2400 R 66-8, R 66-8 P
O 460 494 077
078

supersedes 7.82
company: VWV
engine: 1,6 l Rabbit

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting -- mm

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,9-3,3 mm		
1.2 Supply-pump pressure	1500	4,9-5,5 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	1500	30,0-31,0 cm ³ /1000 strokes		2,5(3,0)
Full-load delivery without charge-air pressure	--	- cm ³ /1000 strokes		
1.4 Idle regulation	415	7,0-11,0 cm ³ /1000 strokes		2,5(3,0)
1.5 Full-speed regulation	100	min.38,0 cm ³ /1000 strokes		
1.6 Start	2600	11,0-17,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	--	-		

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1500 (2,4-3,8)	2400 6,1-6,9(5,8-7,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	400 2,1-2,7		2400 7,0-7,6
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-123)		2400 55-138(40-123)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2700 2600 2400 1500 600	2,5-9,5 (2,0-10,0) (10,0-18,0) 26,0-28,0 (24,7-29,3) (28,2-32,8) 17,5-20,5 (16,0-22,0)	
switch-off electr.	400	0	
Idle stop	1200 600 415	max. 5,0 max. 6,0 (5,0-13,0)	
End stop	400 500	min. 13,5 max. 19,5	
2.4 Solenoid	cut-in voltage	min. 10,0 V	
		rated voltage 12 V.	

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max. 2,5
*	1,8-2,4
XK	18,4-20,4
XL	10,5-13,8

Observations

* operating stroke
(cold-start accel.)

Test Specifications Distributor-type Fuel-injection Pumps

En

Testoil-ISO 4113

VE 4/10 F 2100 L 75-1
0 460 404 034

Overflow temperature 45° C

supersedes 5.84
company: VM-Motorri
engine: HR 492 HT

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1600	5,3 - 5,7 mm	0,8	
1.2 Supply-pump pressure	1600	5,8 - 6,4 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	1600	47,5-48,5 cm ³ /1000 strokes	0,8	max. 3,0
Full-load delivery without charge-air pressure	600	35,0-36,0 cm ³ /1000 strokes	0	
1.4 Idle regulation	400	15,0-19,0 cm ³ /1000 strokes	0	max. 3,0
1.5 Full-speed regulation	2300	24,5-30,5 cm ³ /1000 strokes	0,8	
1.6 Start	100	min. 50 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device LDA = 0,8 bar	n = rev/min mm	1000 1,7-2,5 (1,4-2,8)	1600 (4,8-6,2)	2100 7,6-8,6 (7,5-8,9)
2.2 Supply pump LDA = 0,8 bar	n = rev/min bar (kgf/cm ²)	400 1,5-2,1		2100 7,5-8,1
Overflow delivery	n = rev/min cm ³ /10 s	400 55-138 (40-153)		2100 55-138 (40-153)

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2450	max. 7,0	0,8
	2300	(23,5-31,5)	0,8
	2100	41,5-44,5(40,8-45,2)	0,8
	1600	31,5-34,5(30,8-35,2)	0
	1600	(45,8-50,2)	0,8
	* 700	43,5-45,5(42,3-46,7)	0,3
	600	(33,3-37,7)	0
switch-off			
Idle stop	550	max. 2,0	
	450	min. 2,0	
	400	(13,0-21,0)	
End stop	400	min. 45	
	500	max. 37	
2.4 Solenoid	cut-in voltage min. 10 V rated voltage 12 V.		

3. Dimensions <small>for assembly and adjustment mm</small>	
Designation	
K	3,3
KR	5,7-5,9
MS	0,7-0,9
SVS	3,8
XK	20,2-22,2
XL	10,3-13,6

Observations
* LDA-stroke 4,2 mm
Use adjusting nut (46) to correct.

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 Ope 1,6 d

6. Edition

En

Testoil-ISO 4113

VE 4/9 F 2300 R 82; VE ... R 82-1

0 460 494 071

0 460 494 114

supersedes 08.84
company: Opel
engine: 2033-1,6 l

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,1-3,5 mm		
1.2 Supply-pump pressure	1500	5,0-5,6 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-		cm ³ /1000 strokes	2,5
Full-load delivery without charge-air pressure	1500	29,0-30,0 cm ³ /1000 strokes		
1.4 Idle regulation	450	6,0-10,0 cm ³ /1000 strokes		2,5
1.5 Full-speed regulation	2625	17,0-23,0 cm ³ /1000 strokes		
1.6 Start	100	min. 40,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	**			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	1200	1500	2300
	mm	1,5-2,3 (1,2-2,6)	(2,6-4,0)	6,5-7,3 (6,2-7,6)
2.2 Supply pump	n = rev/min	600		2300
	bar (kgf/cm ²)	2,4-3,0		7,3-7,9
Overflow delivery	n = rev/min	500		2300
	cm ³ /10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	3000	max. 5,0	
	2785	7,0-13,0 (6,0-14,0)	
	2625	(16,0-24,0)	
	2300	27,1-29,1 (25,8-30,4)	
	1500	(27,2-31,8)	
	600	22,5-25,5 (21,0-27,0)	
switch-off	2300	0	
Idle stop	1200	max. 1,0	
	650	2,0-7,0 (0,5-8,5)	
	450	(4,0-12,0)	
End stop	350	min. 28	
	500	max. 28	

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,2-1,4
SVS	max. 2,0
*	1,8-2,4
XK	22,3-23,3
XL	11,0-14,9

Observations

* operating stroke (cold-start accel.)

**Observe VDT-I-460/138

2.4 Solenoid cut-in voltage min. 10 V
rated voltage 12 V.

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 STE 4,0 K
2. Edition

En

Testoil-ISO 4113

VE 4/11 F 1200 R 94-2 (FD 442)
0 460 414 014
Note VDT-I-460/139
Overflow temperature 45° C

supersedes 8.84
company: Steyr
engine: WD 411.45
47 kW

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	800	3,4 - 3,8 mm		
1.2 Supply-pump pressure	800	4,7 - 5,3 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	800	68,5-69,5 cm ³ /1000 strokes		3,0 (3,5)
1.4 Idle regulation	300	21,0 - 25,0 cm ³ /1000 strokes		3,0 (4,0)
1.5 Full-speed regulation	1300	19,0 - 25,0 cm ³ /1000 strokes		
1.6 Start	100	min. 78,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	500	800	1200
	mm	0,7-1,5 (0,4-1,8)	(2,9-4,3)	6,6-7,4 (6,3-7,7)
2.2 Supply pump	n = rev/min	500		1200
	bar (kgf/cm ²)	3,2-3,8		6,5-7,1
Overflow delivery	n = rev/min	500		1200
	cm ³ /10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)	
End stop	1340	max. 3,0 (17,5-26,5)		
	1300			
	1250	51,0-59,0 (50,5-59,5)		
	1180	68,0-70,0 (66,3-71,7)		
	800	(66,3-71,7)		
	500	64,5-67,5 (62,6-69,0)		
switch-off				
Idle stop	400	max. 1,5 5,0-11,0 (3,5-12,5)		
	350			
	300	(18,5-27,5)		
	End stop	170		min. 78
	250	min. 65		

3. Dimensions

Designation	for assembly and adjustment mm
K	3,3
KF	5,3
MS	1,0
SVS	4,0
A	
B	

Observations

2.4 Solenoid
max. cut-in voltage
test voltage

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 PEU 1,9 a
2. Edition

En

11.82

VE 4/9 F 2300 R 114

Overflow temperature 45° C

supersedes
company:
engine:

Peugeot
XUD 9

0 460 494 112

DHK: 1 688 901 022/130 bar

Fuel injection test tubing 1 680 750 073

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/.

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	2000	7,8-8,2 mm		
1.2 Supply-pump pressure	1250	3,9-4,5 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	1250	28,8-29,8 cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery without charge-air pressure	400	4,0-8,0 cm ³ /1000 strokes		2,5 (3,0)
1.4 Idle regulation	2400	19,3-25,3 cm ³ /1000 strokes		
1.5 Full-speed regulation	100	min.44,0 cm ³ /1000 strokes		
1.6 Start	2000	-		
1.7 Load-dependent port-closing				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	700	1250	2000
	mm	0,5-1,5 (0,3-1,7) 3,4-4,2 (3,1-4,5) (7,3-8,7)		
2.2 Supply pump	n = rev/min	700	2000	
	bar (kgf/cm ²)	2,3-2,9		5,9-6,5
Overflow delivery	n = rev/min	600	2300	
	cm ³ /10 s	55-138 (40-153) 55-138 (40-153)		

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2650	max. 7,0	
	2500	10,7-16,7 (9,7-17,7)	
	2400	(18,3-26,3)	
	2250	28,9-30,9 (27,6-32,2)	
	2000	29,7-31,7 (28,4-33,0)	
	1250	(27,0-31,6)	
	700	29,5-32,5 (28,0-34,0)	
switch-off			
Idle stop	400	(2,0-10,0)	
	450	max. 5,0	
End stop	250	min. 40	
	500	max. 35	

3. Dimensions

for assembly and adjustment mm

Designation	mm
K	3,3
KF	5,7 - 5,9
MS	1,3 - 1,5
SVS	max. 4,0
A XK	18,9-20,9
B XL	9,6 -13,0

Observations

2.4 Solenoid

cut-in voltage min. 10 V
rated voltage 12 V

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 FIA 1,7 h
3. Edition

En

VE 4/10 F 2050 R 124
0 460 404 031

Overflow temperature 45° C

supersedes 9.83
company: Fiat
engine: 8144-81

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm ± 0,02 (0,04)

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	5,3 - 5,7 mm	0,75	
1.2 Supply-pump pressure	1500	6,1 - 6,7 bar (kgf/cm ²)	0,75	
1.3 Full-load delivery with charge-air pressure	1500	61,5 - 62,5 cm ³ /1000 strokes	0,75	3,0 (3,5)
Full-load delivery without charge-air pressure	600	43,5 - 44,5 cm ³ /1000 strokes	0	
1.4 Idle regulation	350	12,5 - 16,5 cm ³ /1000 strokes	0	3,0 (3,5)
1.5 Full-speed regulation	2200	40,0 - 46,0 cm ³ /1000 strokes	0,75	
1.6 Start	100	min. 60,0 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	1500	-		

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	600 (0,75 bar)	1500 (0,75 bar)	2050 (0,75 bar)
	mm	0,9-1,7 (0,6-2,0)	(4,8-6,2)	7,6-8,4 (7,3-8,7)
2.2 Supply pump	n = rev/min	400 (0 bar)	600 (0 bar)	2050 (0,75 bar)
	bar (kgf/cm ²)	3,4-4,0	4,0-4,6	7,4-8,0
Overflow delivery	n = rev/min	600		2050 (0,75 bar)
	cm ³ /10 s	28-83 (13-98)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2400	max. 2,0	0,75
	2300	16,0-24,0 (15,5-24,5)	0,75
	2200	(38,5-47,5)	0,75
	2050	53,1-56,1 (51,9-57,3)	0,75
	1500	(59,3-64,7)	0,75
	*800	53,5-54,5 (50,6-57,4)	0,2
	600	(40,0-47,4)	0
switch-off	2050	0	
Idle stop	350	(10,0-19,0)	
	450	max. 3,5	
	500	max. 2,0	
End stop	350	min. 55	
	450	max. 55	
2.4 Solenoid	cut-in voltage	min. 10 V rated voltage 12 V.	

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,7 - 6,0
MS	1,2 - 1,4
SVS	3,2
XK	25,0 -27,0
XL	9,8 -13,1

Observations

* LDA-stroke 3,8 mm
Use adjusting nut
(46) to correct.

Test Specifications Distributor-type Fuel-injection Pumps

En

VE 4/9 F 2400 R 125 Overflow temperature 45° C
0 460 494 122
DHK 1 688 901 022/130 bar
Fuel injection test tubing 6x2x450 mm/1 680 750 073
All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

supersedes 2.84
company: Ford
engine: Kent Diesel

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	4,3- 4,7 mm		
1.2 Supply-pump pressure	1500	5,3- 5,9 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	1750	28,4-29,4 cm ³ /1000 strokes		2,5 (3,0)
1.4 Idle regulation	420	9,0-13,0 cm ³ /1000 strokes		2,0 (3,0)
1.5 Full-speed regulation	2675	10,4-16,4 cm ³ /1000 strokes		
1.6 Start	100	min. 50,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	800	1500	2000
	mm	1,0-1,8(0,7-2,1)	(3,8-5,2)	6,4-7,2(6,1-7,5)
2.2 Supply pump	n = rev/min	600	2000	
	bar (kgf/cm ²)	3,1-3,7	6,6-7,2	
Overflow delivery	n = rev/min	500	2400	
	cm ³ /10 s	55-138(40-153)	55-138(40-153)	

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2950	max. 2,0	
	2675	(9,4-17,4)	
	2550	19,5-25,5 (18,5-26,5)	
	2400	27,7-29,7 (26,4-31,0)	
	1750	(26,6-31,2)	
	1000	24,8-27,8 (23,3-29,3)	
	600	23,4-26,4 (21,9-27,9)	
switch-off	2400	0	
Idle stop	570	max. 2,5	
	475	3,3-7,3 (1,3-9,3)	
	420	(7,0-15,0)	
End stop	400	min. 30,0	
	500	max. 30,0	
2.4 Solenoid	cut-in voltage min. 10 V rated voltage 12 V.		

3. Dimensions <small>for assembly and adjustment</small>	
Designation	mm
K	3,2-3,4
KF	5,7-6,0
MS	1,6-1,85
SVS	3,4
XK	23,3-25,3
XL	10,4-13,8

Observations
Check operation of hydr cold-start accel.. Do not apply any voltage to expansion element. At 600 min/1 a timing-device travel of 2.2 - 2.4 mm must be obtained.

Test Specifications Distributor-type Fuel-injection Pumps

WPP G01/4 PEU 2,3 k 1
3. Edition

VE 4/9 F 2075 R 126-2 Overflow temperature 45° C
0 460 494 155
DHK 1 688 901 022/130 bar
Fuel injection test tubing 6x2x450 mm/1 680 750 073

supersedes 1.85
company: Peugeot
engine: XD 3 S
(Special vehicle)

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	5,8 - 6,2 mm	0,8	
1.2 Supply-pump pressure	1500	5,6 - 6,2 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	1500	52,5 - 53,5 cm ³ /1000 strokes	0,8	2,5 (3,0)
Full-load delivery without charge-air pressure	500	41,3 - 42,3 cm ³ /1000 strokes	0	
1.4 Idle regulation	350	20,0 - 24,0 cm ³ /1000 strokes	0	2,0 (3,0)
1.5 Full-speed regulation	2300	26,5 - 32,5 cm ³ /1000 strokes	0,8	
1.6 Start	100	min. 67,0 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing				

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	750	1000	1500	2000
LDA=0,8 bar	mm	0,8-1,6(0,5-1,9) 2,5-3,3(2,7-3,6) (5,3-6,7) 7,8-8,6(7,5-8,9)			
2.2 Supply pump	n = rev/min	200	750	2000	
LDA=0,8 bar	bar (kgf/cm ²)	1,4-2,0 3,4-4,0 7,1-7,7			
Overflow delivery	n = rev/min	500		2075	
	cm ³ /10 s	42-83 (27-98) 55-138 (40-153)			

2.3 Fuel deliveries				
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)	
End stop	2600	max. 1,0	0,8	
	2300	(25,5-33,5)	0,8	
	2200	39,5-45,5 (38,5-46,5)	0,8	
	2000	51,0-53,0 (49,7-54,3)	0,8	
	1500	(50,7-55,3)	0,8	
	1000	48,5-51,5 (47,7-52,3)	0,8	
	750*	46,1-47,1 (44,3-48,9)	0,25	
	500	(38,8-44,8)	0	
switch-off				
electr.	400	0		
Idle stop	500	max. 1,0		
	400	8,0-12,0 (6,0-14,0)		
	350	(18,0-26,0)		
	End stop	230	min. 60	
	330	max. 60		
2.4 Solenoid	cut-in voltage	min. 22,0 V rated voltage 24,0 V		

3. Dimensions <small>for assembly and adjustment mm</small>	
Designation	
K	
KF	K 1
MS	5,4 - 5,7
SVS	1,2 - 1,4
	4,6
XK	20,2 -22,2
XL	9,3 -12,6
Observations	
* LDA-stroke 4,5 mm Use adjusting nut (46) to correct. Pulling electro-magnet	

Test Specifications Distributor-type Fuel-injection Pumps

VE 4/11 F 1900 R 127-1 Overflow temperature 45° C
 O 460 414 026
 DHK: 1 688 901 023/172 + 3 bar
 Fuel injection test tubing 1 680 750 073 6x2x450 mm

supersedes -
 company: Iveco-Sofim
 engine: 8140.21.210

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

see VDT-W-460/

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge air press bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1100	4,6 - 5,0 mm	1,0	
1.2 Supply-pump pressure	1100	5,1 - 5,7 bar (kgf/cm ²)	1,0	
1.3 Full-load delivery with charge-air pressure	1100	44,7 - 45,7 cm ³ /1000 strokes	1,0	3,5 (4,0)
Full-load delivery without charge-air pressure	500	38,5 - 39,5 cm ³ /1000 strokes	0	
1.4 Idle regulation	400	13,0 - 17,0 cm ³ /1000 strokes	0	3,0 (4,0)
1.5 Full-speed regulation	2300	15,0 - 21,0 cm ³ /1000 strokes	1,0	
1.6 Start	100	min. 60,0 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	1100	-	0	

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	800	1100	1500	1900
LDA=1,0 bar	mm	2,8-3,6(2,5-3,9) (4,1-5,5) 6,1-6,9(5,8-7,2) 7,6-8,4(7,3-8,7)			
2.2 Supply pump	n = rev/min	600		1900	
LDA=1,0 bar	bar (kgf/cm ²)	3,6-4,2		7,2-7,8	
Overflow delivery	n = rev/min	600		1900	
	cm ³ /10 s	42-83 (27-98)		55-198 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2450	max. 5,0	1,0
	2300	(13,5-22,5)	1,0
	2100	30,0-38,0 (29,5-38,5)	1,0
	1900	41,5-44,1 (40,2-45,4)	1,0
	1500	42,2-44,8 (40,9-46,1)	1,0
	1100	(42,6-47,8)	1,0
	900*	37,5-38,5 (35,4-40,6)	0,4
	500	50,8-54,3 (49,1-55,9)	1,0
	500	(35,6-42,4)	0
	switch-off		
Idle stop	550	max. 5,0	
	400	(10,5-19,5)	
	350	27,0-33,0 (25,5-34,5)	
	200	min. 70,0	
	350	mx. 70,0	

3. Dimensions

for assembly and adjustment mm

Designation	mm
K	-
KF	5,2-5,4
MS	0,9-1,1
SVS	4,6
XK	17,0-19,0
XL	12,7-16,1

Observations

* LDA-stroke 6,2mm

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 IHC 3,9 y
4. Edition

En

Test ISO 4113

VE 4/11 F 1150 R 140
0 460 414 009
DHK 1 688 901 020

Overflow temperature 45° C

Supersedes 7.84
company: IHC
engine: DT 239/856

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm ± 0,02 (0,04)

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	800	4,5 - 4,9 mm	0,8	
1.2 Supply-pump pressure	800	5,3 - 5,9 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	800	92,2-93,2 cm ³ /1000 strokes	0,8	3,5 (4,0)
Full-load delivery without charge-air pressure	500	75,5 - 77,5 cm ³ /1000 strokes	0	
1.4 Idle regulation	350	23,0 - 27,0 cm ³ /1000 strokes	0	3,5 (4,0)
1.5 Full-speed regulation	1270	22,0-28,0 cm ³ /1000 strokes	0,8	
1.6 Start	100	min. 100 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	-	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	400	800	1150
LDA = 0,8 mm		0,8-1,6 (0,5-1,9)	(4,0 - 5,4)	5,3 - 6,1 (5,0 - 6,4)
2.2 Supply pump	n = rev/min	400		1150
LDA = 0,8 bar	bar (kgf/cm ²)	3,7 - 4,3		6,4 - 7,0
Overflow delivery	n = rev/min cm ³ /10 s	500	800	
		55-138 (40-153)	55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1300	max. 2,5	0,8
	1270	(20,5-29,5)	0,8
	1230	71,0-79,0 (70,5-79,5)	0,8
	1130	85,4 - 88,4 (84,2-89,6)	0,8
	800	(90,0-95,4)	0,8
	800 *	86,4-90,4 (85,7-91,1)	0,3
	500	83,5-84,5 (80,6-87,4)	0,23
	500	(73,1-79,9)	0
switch-off			
Idle stop	350	(20,5-29,5)	
	400	5,0-11,0 (3,5-12,5)	
	450	max. 3,0	
	End stop	220	min. 100
	300	max. 80	

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2 - 5,4
MS	1,2 - 1,4
SVS	5,0
K	20,2 - 22,2
L	12,3 - 15,7

Observations

* LDA-stroke 4,9 mm
Use adjusting nut (46) to correct.

2.4 Solenoid cut-in voltage min. 10 V
rated voltage 12 V.

BOSCH

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Test Specifications Distributor-type Fuel-injection Pumps

Testoil-ISO 4113

VE 4/10 F 2100 L 155

Overflow temperature 45° C

0 460 404 036

supersedes 10.84
company: Opel
engine: 2,3 TD

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

Pre-stroke setting mm

see VDT-W-460/.

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	5,1-5,5 mm	0,8	
1.2 Supply-pump pressure	1500	5,0-5,6 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	1200	58,5-59,5 cm ³ /1000 strokes	0,8	3,0
Full-load delivery without charge-air pressure	500	36,0-37,0 cm ³ /1000 strokes	0	
1.4 Idle regulation	290	13,5-17,5 cm ³ /1000 strokes	0	3,0
1.5 Full-speed regulation	2425	15,0-21,0 cm ³ /1000 strokes	0,8	
1.6 Start	100	min. 48,0 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	1500		0	

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	800 1,5-2,3 (1,2-2,6)	1200 3,4-4,0 (3,0-4,4)	1500 (4,6-6,0)	2100 7,9-8,7 (7,6-9,0)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 2,7-3,3 (0 bar)	1200 4,4-5,0 (0,8 bar)	2100 6,4-7,0 (0,8 bar)	
Overflow delivery	n = rev/min cm ³ /10 s	500 (0 bar) 55-138 (40-153)		2100 (0,8 bar) 55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2550	max. 6,0	0,8
	2425	(13,5-22,5)	0,8
	2300	(27,5-36,5)	0,8
	2100	(44,8-50,1)	0,8
	1200	(56,3-61,6)	0,8
	800*	(41,3-46,6)	0,3
	500	(33,1-39,9)	0
switch-off	2100		
Idle stop	380	max. 2,5	
	320	7,0-13,0 (5,5-14,5)	
	290	(11,0-20,0)	
	End stop 250	min. 50,0	
	400	max. 47,0	
2.4 Solenoid	cut-in voltage min. 10 V rated voltage 12 V.		

3. Dimensions

for assembly and adjustment mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	0,9-1,1
SVS	max. 3,0
Observations	
* Use adjusting nut (46) to correct. LDA-stroke 6,2 mm Hydr.-cold-start accel. (0 V) 300 min ⁻¹ 2,2-3,8 mm 800 " 3,7-6,2 mm 1200 " max. 6,2 mm	

Test Specifications Distributor-type Fuel-injection Pumps

En

VE 6/12 F 1100 R 159 - 9
0 460 426 051 Overflow temperature 45° C
DHK: 1 688 901 016/207 + 3 bar

superseded by 1.85
company: Cummins
engine: 6 BT - 590

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm \pm 0,02 (0,04)

see VDT-W-460/.

0 460 426 051

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	750	3,1-3,5 mm		
1.2 Supply-pump pressure	750	3,6-4,2 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	900	81,5-82,5 cm ³ /1000 strokes		4,0 (4,5)
1.4 Idle regulation	375	27,0-33,0 cm ³ /1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	1175	37,0-43,0 cm ³ /1000 strokes		
1.6 Start	100	min./ 97,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-	-		

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	500 1,3-2,1 (1,0-2,4)	750 (2,6-4,0)	1100 5,6-6,4 (5,3-6,7)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 2,5-3,1	1100 5,0-5,6	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)	1100 55-138 (40-153)	

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1250	max. 1,5	
	1175	(35,0-45,0)	
	1100	77,0-80,0 (75,5-81,5)	
	900	(79,0-85,0)	
	750	83,0-87,0 (81,2-88,7)	
	500	82,5-86,5 (80,7-88,2)	
switch-off			
Idle stop	450	max. 1,5	
	375	(25,0-35,0)	
	300	56,0-64,0 (55,0-65,0)	
	130	min. 97,0	
End stop	240	max. 85,0	
2.4 Solenoid	cut-in voltage min. 10 V rated voltage 12 V.		

3. Dimensions <small>for assembly and adjustment mm</small>	
Designation	
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	1,2

Observations
Stop check electric shutoff device at 375 min/1

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 CUM 5,9 p

1. Edition

En

VE 6/12 F 1400 R 159-15 Overflow temperature 45° C
 0 460 426 054
 DHK: 1 688 901 027/250 + 3 bar
 Fuel injection test tubing 1 680 750 017

supersedes -
 company: CDC
 engine: 6 BT - 5.9 93 kW

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm ± 0,02(0,04)

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	850	3,8 - 4,2 mm		
1.2 Supply-pump pressure	850	3,9 - 4,5 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure			cm ³ /1000 strokes	
Full-load delivery without charge-air pressure	1100	56,5 - 57,5 cm ³ /1000 strokes		4,0 (4,5)
1.4 Idle regulation	350	11,0 - 17,0 cm ³ /1000 strokes		5,5
1.5 Full-speed regulation	1470	32,0 - 38,0 cm ³ /1000 strokes		
1.6 Start	100	min. 50,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	500	800	1100
	mm	1,5-2,3 (1,2-2,6)	(3,3-4,7)	5,4-6,2 (5,1-6,5)
2.2 Supply pump	n = rev/min	500		1100
	bar (kgf/cm ²)	2,5 - 3,1		4,9 - 5,5
Overflow delivery	n = rev/min	500		1400
	cm ³ /10 s	42-83 (27-98)		55-138 (40-153)

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1580	max. 2,0	
	1520	8,5-16,5 (7,5-17,5)	
	1470	(30,0-40,0)	
	1400	53,5-56,5 (52,0-58,0)	
	1100	(54,0-60,0)	
	850	52,5-56,5 (51,5-57,5)	
	500	39,0-47,0	
switch-off			
Idle stop	450	max. 4,0	
	350	(9,0-19,0)	
	300	33,0-41,0 (32,0-42,0)	
End stop	130	min. 60,0	
	400	max. 60,0	
2.4 Solenoid	cut-in voltage min. 10 V rated voltage 12 V.		

3. Dimensions <small>for assembly and adjustment mm</small>	
Designation	
K	-
KF	5,1-5,4
MS	1,4-1,6
SVS	0,8
XK	20,2-22,2
XL	10,8-14,2

Observations
 Stop check electric shutoff device at 350 min/1

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 FIA 2,7 a 2

1. Edition

En

VE 3/11 F 1250 L 163-2 Overflow temperature 45° C

0 460 413 004

DHK: 1 688 901 020/172 + 3 bar

supersedes
company:
engine:

Fiat
8035.06.220

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm ± 0,02(0,04)

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	800	2,8 - 3,2 mm		
1.2 Supply-pump pressure	800	4,4 - 5,0 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure			cm ³ /1000 strokes	
Full-load delivery without charge-air pressure	800	57,5 - 58,5 cm ³ /1000 strokes		3,5 (4,0)
1.4 Idle regulation	325	10,5 - 14,5 cm ³ /1000 strokes		3,5 (4,0)
1.5 Full-speed regulation	1350	37,0 - 43,0 cm ³ /1000 strokes		
1.6 Start	100	min. 80,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	600	800	1000
	mm	0,9-1,5 (0,5-1,9)	(2,3-3,7)	4,5-5,3 (4,2-5,6)
2.2 Supply pump	n = rev/min	500	1250	
	bar (kgf/cm ²)	3,0 - 3,6	6,4 - 7,0	
Overflow delivery	n = rev/min	500	1250	
	cm ³ /10 s	42-83 (27-98)	55-138 (40-153)	

2.3 Fuel deliveries	Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop		1450	max. 1,0	
		1400	6,5-13,5 (5,5-14,5)	
		1350	(35,5-44,5)	
		1250	50,0-53,0 (48,8-54,2)	
		800	(55,3-60,7)	
		500	52,5-55,5 (50,6-57,4)	
switch-off				
Idle stop		325	(8,0-16,5)	
		375	2,0- 8,0 (0,5-9,5)	
End stop		450	max. 2,0	
		150	min. 90,0	
		250	max. 50,0	
2.4 Solenoid	cut-in voltage min. 10 V rated voltage 12 V.			

3. Dimensions <small>for assembly and adjustment mm</small>	
Designation	
K	-
KF	5,1-5,4
MS	1,5-1,7
SVS	4,3
XK	17,0-19,0
XL	14,5-17,9

Observations

⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 FIA 3,6 c

1. Edition

En

VE 4/11 F 1250 L 164-2 Overflow temperature 45° C

0 460 414 024

DHK: 1 688 901 020/172 + 3 bar

supersedes

company:

Fiat-Iveco

engine:

8045.06.220

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm \pm 0,02 (0,04)

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	800	3,0 - 3,4 mm		
1.2 Supply-pump pressure	800	4,1 - 4,7 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure		cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	800	63,5 - 64,5 cm ³ /1000 strokes		3,5 (4,0)
1.4 Idle regulation	350	23,0 - 27,0 cm ³ /1000 strokes		3,5 (4,0)
1.5 Full-speed regulation	1350	32,0 - 38,0 cm ³ /1000 strokes		
1.6 Start	100	min. 90,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 1,2-2,0 (0,9-2,3)	800 (2,5-3,9)	1000 4,9-5,5 (4,5-5,9)	1250 5,4-6,2 (5,1-6,5)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	600 3,2 - 3,8		1250 6,1 - 6,7	
Overflow delivery	n = rev/min cm ³ /10 s	500 42-83 (27-98)		1250 55-138 (40-153)	

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1410	max. 3,0	
	1380	13,5-20,5 (12,5-21,5)	
	1350	(30,5-39,5)	
	1250	54,3-56,7 (52,8-58,2)	
	800	(61,3-66,7)	
	500	57,5-60,5 (55,6-62,4)	
switch-off			
Idle stop	350	(20,5-29,5)	
	425	4,0-10,0 (2,5-11,5)	
	480	max. 2,5	
	150	min. 100,0	
	250	max. 50,0	
2.4 Solenoid	cut-in voltage	min. 10 V rated voltage 12 V.	

3. Dimensions for assembly and adjustment

Designation	mm
K	-
KF	5,2-5,4
MS	1,5-1,7
SVS	4,0
XK	17,0-19,0
XL	13,5-16,9

Observations

C6

BOSCH

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9.85

Test Specifications Distributor-type Fuel-injection Pumps

En

VE 5/11 F 1250 R 165
0 460 415 005

Overflow temperature 45° C

DHK: 1 688 901 020

superseded by 6.84
company: Fiat-Iveco
engine: 8055.05.200

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm ± 0,02 (0,04) mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	800	2,5-2,9 mm		
1.2 Supply-pump pressure	800	3,8-4,4 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	800	70,0-71,0 cm ³ /1000 strokes		3,5 (4,0)
1.4 Idle regulation	300	16,0-20,0 cm ³ /1000 strokes		3,0 (4,0)
1.5 Full-speed regulation	1400	16,5-22,5 cm ³ /1000 strokes		
1.6 Start	100	min. 95 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	600	800	1200
	mm	0,6-1,4(0,3-1,7)	(2,0-3,4)	6,0-6,8(5,7-7,1)
2.2 Supply pump	n = rev/min	400	1200	
	bar (kgf/cm ²)	2,0-2,6	5,6-6,2	
Overflow delivery	n = rev/min	500	1250	
	cm ³ /10 s	55-138(40-153)	55-138(40-153)	

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1450	max. 2,0	
	1400	(15,0-24,0)	
	1360	42,5-49,5 (41,5-50,5)	
	1250	62,5-65,5 (61,3-66,7)	
	800	(67,9-73,1)	
	500	63,0-66,0 (61,1-67,9)	
switch-off	1250	0	
Idle stop	400	max. 2,0	
	350	8,0-14,0 (6,5-15,5)	
	300	(13,5-22,5)	
	150	min. 95	
	250	max. 60	

3. Dimensions <small>for assembly and adjustment mm</small>	
Designation	
K	-
KF	5,2-5,4
MS	1,5-1,7
SVS	4,3
A XK	17,0-19,0
B XL	14,9-18,3

2.4 Solenoid	cut-in voltage min. 10 V rated voltage 12 V.
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Observations

Test Specifications Distributor-type Fuel-injection Pumps

En

Test ISO 4113

VE 4/9 F 2250 R 174 Overflow temperature 45° C
0 460 494 154
DHK: 1 6 88 901 022 / 130+ 3 bar
Fuel injection test tubing 6x2x450 mm

supersedes 1.85
company: PSA-Mahindra
engine: XD 4/90

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-480/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,8-4,2 mm		
1.2 Supply-pump pressure	1500	5,5-6,1 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	1500	31,0-32,0 cm ³ /1000 strokes		2,5(3,0)
1.4 Idle regulation	350	7,0-11,0 cm ³ /1000 strokes		2,0(3,0)
1.5 Full-speed regulation	2400	11,0-17,0 cm ³ /1000 strokes		
1.6 Start	100	min. 50 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,6-2,4 (1,3-2,7)	1500 (3,3-4,7)	2200 6,4-7,2 (6,1-7,5)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	400 2,0-2,6	2200 7,4-8,0	
Overflow delivery	n = rev/min cm ³ /10 s	2250 55-138 (40-153)		

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2500	max. 4,0	
	2400	(10,0-18,0)	
	2350	21,0-27,0 (20,0-28,0)	
	2200	34,0-37,0 (32,8-38,2)	
	2000	33,5-36,5 (32,3-37,7)	
	1500	(28,8-34,2)	
	1000	29,7-32,7 (28,2-34,2)	
	500	30,8-33,8 (29,3-35,3)	
switch-off			
Idle stop	350	(5,0-13,0)	
	400	max. 4,0	
	550	max. 1,0	
	End stop	350 450	min. 40 min. 44
2.4 Solenoid	cut-in voltage	min. 10 V rated voltage 12 V	

3. Dimensions <small>for assembly and adjustment</small>	
Designation	mm
K	3,2-3,4
KF	5,7-6,0
MS	1,2-1,4
SVS	2,5
^A XK	20,2-22,2
^B XL	12,0-15,4

Observations

Test Specifications Distributor-type Fuel-injection Pumps

En

VE 6/11 F 1250 R 181-1 Overflow temperature 45° C
0 460 416 046
DHK: 1 688 901 020

superseded
company: Fiat-Iveco
engine: 8065.05.290

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1000	4,7-5,1 mm		
1.2 Supply-pump pressure	1000	6,2-6,8 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	1000	73,5-74,5 cm ³ /1000 strokes		3,5 (4,0)
1.4 Idle regulation	400	20,0-24,0 cm ³ /1000 strokes		3,5 (4,0)
1.5 Full-speed regulation	1380	21,0-27,0 cm ³ /1000 strokes		
1.6 Start	100	min. 110,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 0,9-1,7(0,6-2,0)	1000 (4,2-5,6)	1250 5,3-6,1(5,0-6,4)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	200 2,0-2,6	600 4,6-5,2	1250 7,2-7,8
Overflow delivery	n = rev/min cm ³ /10 s	500 42-83(27-98)		1250 55-138(40-153)

2.3 Fuel deliveries	Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop		1450	max. 2,0	
		1380	(19,5-28,5)	
		1330	48,5-55,5 (47,5-56,5)	
		1250	64,0-67,0 (62,8-68,2)	
		1000	(71,3-76,7)	
		600	68,5-71,5 (66,6-73,4)	
switch-off		1250	0	
Idle stop	End stop	400	7,0-13,0 (17,5-26,5)	
		450	(5,5-14,5)	
End stop		150	min. 110,0	
		250	max. 85,0	
2.4 Solenoid	cut-in voltage min. 22,0 V rated voltage 24,0 V			

3. Dimensions	Designation	for assembly and adjustment mm
	K	3,2-3,4
	KF	5,2-5,4
	MS	1,5-1,7
	SVS	4,3
	XK	17,0-19,0
	KL	13,5-16,9
Observations		

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWV 2,4 p
2. Edition

En

Testo-ISO 4113

VE 6/10 F 2400 L 194
0 460 406 043

supersedes 3.85
company: VW
engine: 087T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting = mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,5-1,9 mm	1,3	
1.2 Supply pump pressure	1500	5,7- 6,3 bar (kgf/cm ²)	1,3	
1.3 Full-load delivery without charge-air pressure	1500	44,0-45,0 cm ³ /1000 strokes	1,3	max. 3,0
Full-load delivery with charge-air pressure	600	25,5-26,5 cm ³ /1000 strokes	0	
1.4 Idle speed regulation	415	6,0-10,0 cm ³ /1000 strokes	0	max. 3,0
1.5 Start	2675	10,0-16,0 cm ³ /1000 strokes	1,3	
1.6 Full-load speed regulation	100	min. 40,0 cm ³ /1000 strokes	0	
1.7 Load-dependent start of delivery				

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	See page 2
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	See page 2
Overflow delivery	n = rev/min cm ³ /10 s	600 (0 bar) 41-83(26-98) 2400 (1,3 bar) 55-138(40-153)

2.3 Fuel deliveries	Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop		2825	max. 6,0	1,3
		2675	(9,0-17,0)	1,3
		2400	35,0-36,0 (33,8-38,2)	1,3
		1500	(42,3-46,7)	1,3
		1500	41,8-44,8 (41,1-45,5)	1,05
		1000 *	37,5-38,5 (35,8-40,2)	0,7
		600	35,5-38,5 (34,0-40,0)	1,3
		600	(23,0-29,0)	0
switch-off electr.		400	0	
Idle stop		415	(4,0-12,0)	
		750	max. 4,0	
		1000	13,0-15,0 (10,0-18,0)	
		EGR end stop	400	min. 20
		500	max. 30	
2.4 Solenoid	cut-in voltage	min. 10 Volt rated voltage 12 V.		

3. Dimensions <small>for assembly and adjustment mm</small>	
Designation	
K	3,2-3,4
KF	6,4-6,6
MS	1,7-1,9
SVS	5,8
A	
B	

Observations
* ALDA-stroke = 6,0 mm

Settings timing device

Rot. speed rev/min	A.L.D.A bar	Solenoid- operated valve V	Timing device travel mm
1200	1,3	12	0 - 0,8 (0 - 1,1)
1500	1,3	12	1,5 - 1,9 (1,0-2,4)
2400	1,3	12	5,4 - 6,2 (5,1-6,5)
600	1,3	0	1,7 - 3,3
1200	1,3	0	1,7 - 3,3
1500	1,3	0	2,5 - 4,1

Settings supply-pump pressure

600	1,3	12	3,3 - 3,9
1500	1,3	12	5,7 - 6,3
1500	1,3	0	6,3 - 7,3
2400	1,3	12	7,8 - 8,4

Test Specifications Distributor-type Fuel-injection Pumps

Testoil-ISO 4113

VE 6/10 F 2400 L 194-1 Overflow temperature 45° C
0 460 406 044

supersedes 3.85
company: VW
engine: 087 T

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kg/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,5- 1,9 mm	1,3	
1.2 Supply-pump pressure	1500	5,7- 6,3 bar (kg/cm ²)	1,3	
1.3 Full-load delivery with charge-air pressure	1500	44,0-45,0 cm ³ /1000 strokes	1,3	max. 3,0
Full-load delivery without charge-air pressure	600	25,5-26,5 cm ³ /1000 strokes	0	
1.4 Idle regulation	415	6,0-10,0 cm ³ /1000 strokes	0	max. 3,0
1.5 Full-speed regulation	2675	10,0-16,0 cm ³ /1000 strokes	1,3	
1.6 Start	100	min. 40,0 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing				

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	See page 2	
2.2 Supply pump	n = rev/min bar (kg/cm ²)	See page 2	
Overflow delivery	n = rev/min cm ³ /10 s	600 (0 bar) 41-83(26-98)	2400 (1,3 bar) 55-138(40-153)

2.3 Fuel deliveries	Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kg/cm ²)	
End stop		2825	max. 6,0	1,3	
		2675	(9,0-17,0)	1,3	
		2400	35,0-36,0 (33,8-38,2)	1,3	
		1500	(42,3-46,7)	1,3	
		1500	41,8-44,8 (41,1-45,5)	1,05	
		1000*	37,5-38,5 (35,8-40,2)	0,7	
		600	35,5-38,5 (34,0-40,0)	1,3	
		600	(23,0-29,0)	0	
		switch-off			
		mech.	2400	0	
Idle stop		415	(4,0-12,0)		
		715	max. 4,0		
		1000	13,0- 15,0 (10,0-18,0)		
		EGR end stop	400	min. 20	
	500	max. 30			
2.4 Solenoid	cut-in voltage min. 10V rated voltage 12 V.				

3. Dimensions <small>for assembly and adjustment mm</small>	
Designation	
K	3,2-3,4
KF	6,4-6,6
MS	1,7-1,9
SVS	5,8

Observations
* ALDA-stroke = 6,0 mm

Settings timing device

Rot. speed rev/min	ALDA bar	Solenoid- operated valve V	Timing device travel mm
1200	1,3	12	0 - 0,8 (0 - 1,1)
1500	1,3	12	1,5 - 1,9 (1,0-2,4)
2400	1,3	12	5,4 - 6,2 (5,1-6,5)
600	1,3	0	1,7 - 3,3
1200	1,3	0	1,7 - 3,3
1500	1,3	0	2,5 - 4,1

Settings supply-pump pressure

600	1,3	12	3,3 - 3,9
1500	1,3	12	5,7 - 6,3
1500	1,3	0	6,3 - 7,3
2400	1,3	12	7,8 - 8,4

Test Specifications Distributor-type Fuel-injection Pumps

En

Testoil-ISO 4113

VE 6/11 F 1500 R 196

Overflow temperature 45° C

supercedes 3.85

0 460 416 042

company:

Fiat-Iveco

DHK: 1 688 901 020/172 + 3 bar

engine:

8060.05.200

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery, cm ³
1.1 Timing device travel	1000	3,8- 4,2 mm		
1.2 Supply-pump pressure	1000	5,4- 6,0 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-		cm ³ /1000 strokes	
Full-load delivery without charge-air pressure	1000	68,7-69,7 cm ³ /1000 strokes		3,5
1.4 Idle regulation	425	8,0-12,0 cm ³ /1000 strokes		4,0
1.5 Full-speed regulation	1600	45,0-51,0 cm ³ /1000 strokes		
1.6 Start	100	min. 76,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	700 0,5-1,3 (0,2-1,6)	1000 (2,7-4,1)	1400 6,2-7,0 (5,9-7,3)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	200 1,5-2,1	700 4,2-4,8	1500 7,2-7,8
Overflow delivery	n = rev/min cm ³ /10 s	600 41-83 (26-98)		1500 55-138 (40-153)

2.3 Fuel deliveries	Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop		1730	max. 2,0	
		1650	34,5-41,5 (33,5-42,5)	
		1600	(43,5-52,5)	
		1500	64,5-67,5 (63,3-68,7)	
		1000	(66,5-71,9)	
		600	57,0-60,0 (55,1-61,9)	
switch-off				
Idle stop		425		(5,5-14,5)
		500	max. 2,0	
End stop		200	min. 80	
		300	max. 32	

3. Dimensions	Designation	for assembly and adjustment mm
	K	3,2-3,4
	KF	5,7-5,9
	MS	1,9-2,1
	SVS	
	A XK	17,0-19,0
	B XL	10,6-14,0

2.4 Solenoid	max. cut-in voltage test voltage
--------------	-------------------------------------

Observations:

24 V Pulling
electromagnet

Test Specifications Distributor-type Fuel-injection Pumps

En

VE 6/12 F 1325 R 198

Overflow temperature 45° C

0 460 426 063

DHK: 1 688 901 027/250 + 3 bar

Fuel injection test tubing 1 680 750 017

supersedes-

company: CDC

engine: 6 BT 5,9 97 kW

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm ± 0,02(0,04)

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	850	3,9-4,3 mm		
1.2 Supply-pump pressure	850	3,9-4,5 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-		cm ³ /1000 strokes	
Full-load delivery without charge-air pressure	1100	56,0-57,0	cm ³ /1000 strokes	4,0 (4,5)
1.4 Idle regulation	375	7,0-13,0	cm ³ /1000 strokes	3,5 (4,5)
1.5 Full-speed regulation	1400	36,0-42,0	cm ³ /1000 strokes	
1.6 Start	100	min. 60,0	cm ³ /1000 strokes	
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	500	850	1100
	mm	1,3-2,1(1,0-2,4)	(3,4-4,8)	5,9-6,7(5,6-7,0)
2.2 Supply pump	n = rev/min	500		1100
	bar (kgf/cm ²)	2,5-3,1		4,9-5,5
Overflow delivery	n = rev/min	500		1325
	cm ³ /10 s	42-83(27-98)		55-138(40-153)

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press.
End stop	1520	max. 2,0	
	1460	10,5-18,5 (9,5-19,5)	
	1400	(34,0-44,0)	
	1325	52,5-55,5 (51,0-57,0)	
	1100	(53,5-59,5)	
	850	53,5-57,5 (52,5-58,5)	
	500	40,5-44,5 (38,7-46,3)	
switch-off			
Idle stop	300	41,0-49,0 (40,0-50,0)	
	375	(5,0-15,0)	
	450	max. 4,0	
End stop	130	min. 65,0	
	250	max. 65,0	
2.4 Solenoid	cut-in voltage min. 10,0 V rated voltage 12 V.		

3. Dimensions <small>for assembly and adjustment</small>	
Designation	mm
K	-
KF	5,2-5,4
MS	1,4-1,6
SVS	1,3
XK	20,2-22,2
XL	9,1-12,5

Observations

Stop check electric shutoff device at 375 min/1

⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWV 1,7 a

1. Edition

En

VE 4/9 F 2250 R 187

Overflow temperature 45° C

supersedes VWV
company: 086 - 1,7 Typ 2
engine:

0 460 494 164

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	4,3-4,7 mm		
1.2 Supply-pump pressure	1500	4,8-5,4 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	1500	35,5-36,5 cm ³ /1000 strokes		2,5 (3,0)
1.4 Idle regulation	415	6,0-10,0 cm ³ /1000 strokes		2,0 (3,0)
1.5 Full-speed regulation	2525	12,0-18,0 cm ³ /1000 strokes		
1.6 Start	100	min. 35,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 2,1-2,9(1,8-3,2)	1500 (3,8-5,2)	2250 7,4-8,2(7,1-8,5)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	600 2,5-3,1	2250 6,7-7,3	
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)	2250 55-138(40-153)	

2.3 Fuel deliveries	Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop		2675	max. 6,0	
		2525	(11,0-19,0)	
		2475	17,0-27,0	(17,0-27,0)
		2250	31,5-33,5	(30,2-34,8)
		1500	(33,7-38,3)	
		600	25,0-28,0	(23,5-29,5)
switch-off				
electr.		400	0	
Idle stop		415		(4,0-12,0)
		1200	max. 4,0	
		400	min. 22,5	
End stop		500	max. 29,5	

3. Dimensions	Designation	for assembly and adjustment mm
	K	3,2-3,4
	KF	5,7-6,0
	MS	1,3-1,5
	SVS	4,8
Observations		

2.4 Solenoid cut-in voltage min. 10,0 V
rated voltage 12 V.

C16

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10.85

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 MAN 5,6 m

1. Edition

En

VE 6/12 F 1400 R 199-1

0 460 426 062

Overflow temperature 45° C

supersedes -
company: MAN
engine: D 0226 MLE

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm ± 0,02 (0,04)

see VDT-W-460/.

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	800	3,1 - 3,5 mm		
1.2 Supply-pump pressure	800	5,2 - 5,8 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	1000	132,5 - 133,5 cm ³ /1000 strokes		4,0
1.4 Idle regulation	300	15,0 - 21,0 cm ³ /1000 strokes		3,5
1.5 Full-speed regulation	1480	92,0 - 100,0 cm ³ /1000 strokes		
1.6 Start	100	min. 90,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	800	-		

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	500 1,4-2,2 (1,1-2,5)	800 (2,6-4,0)	1100 4,1-4,9 (3,8-5,2)	1400 4,5-5,3 (4,2-5,6)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	200 2,3 - 2,9	1400 7,3 - 7,9		
Overflow delivery	n = rev/min cm ³ /10 s	400 42-83 (2/-98)	55-138 (40-153)		

2.3 Fuel deliveries	Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop		1650	max. 2,0	
		1600	6,0-14,0 (5,0-15,0)	
		1480	(91,0-101,0)	
		1400	123,5-126,5 (122,0-128,0)	
		1000	(130,0-136,0)	
		630	130,0-134,0 (128,2-135,8)	
switch-off				
Idle stop		300	(13,0-23,0)	
		350	1,0-7,0	
	End stop	400	max. 2,0	
		380	min. 120,0	
		430	max. 135,0	

3. Dimensions <small>for assembly and adjustment</small>	Designation	mm
	K	-
	KF	5,7-5,9
	MS	1,0-1,2
	SVS	2,0
	A	
	B	

Observations

2.4 Solenoid	max. cut-in voltage test voltage
--------------	-------------------------------------

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWV 2,4 r

1. Edition

En

VE 6/10 F 1500 L 201

0 460 406 045

Overflow temperature 45° C

supersedes -
company: VWV
engine: 08/ T

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1480	1,4 - 1,8 mm	0,75	
1.2 Supply-pump pressure	1480	4,7 - 5,3 bar (kgf/cm ²)	0,75	
1.3 Full-load delivery with charge-air pressure	1480	38,5 - 39,5 cm ³ /1000 strokes	0,75	2,5 (3,0)
Full-load delivery without charge-air pressure	600	21,5 - 22,5 cm ³ /1000 strokes	0	
1.4 Idle regulation	375	6,0 - 10,0 cm ³ /1000 strokes	0	2,0 (3,0)
1.5 Full-speed regulation	1570	9,0 - 15,0 cm ³ /1000 strokes	0,75	
1.6 Start	100	min. 35 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	1200 0,1-0,9 (0-1,2)	1480 (0,9-2,3)
LDA=0,75 bar 2.2 Supply pump	n = rev/min bar (kgf/cm ²)	600 2,4 - 3,0	
LDA=0,75 bar Overflow delivery	n = rev/min cm ³ /10 s	600 42-83 (27-98)	1480 (0,75 bar) 55-138 (40-153)

2.3 Fuel deliveries	Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop		1625	max. 3,0 (8,0-16,0) (36,7-41,3) 29,0-30,0 (26,5-32,5) 33,0-36,0 (31,5-37,5) (19,0-25,0)	0,75
		1570		0,75
		1480		0,75
		750*		0,30
		600		0,75
		600		0
switch-off				
electr.		400	0	
Idle stop	End stop	450	max. 3,0 (4,0-12,0)	0
		375		0
		400		min. 18
		500		max. 25
2.4 Solenoid	cut-in voltage min. 10,0 V rated voltage 12 V			

3. Dimensions <small>for assembly and adjustment mm</small>	
Designation	
K	3,2 - 3,4
KF	6,3 - 6,6
MS	1,0 - 1,2
SVS	3,8
A XK	18,8-20,8
B XL	11,8-15,2

Observations
* LDA-stroke 4,5 mm
Use adjusting nut (46) to correct.

Test Specifications Distributor-type Fuel-injection Pumps

En

VE 6/10 F 2000 L 201-2 Overflow temperature 45° C
0 460 406 046

supersedes
company: VWV
engine: 087 T

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting mm see VDT-W-460/.

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,5 - 1,9 mm	0,75	
1.2 Supply-pump pressure	1500	4,8 - 5,4 bar (kgf/cm ²)	0,75	
1.3 Full-load delivery with charge-air pressure	1500	38,0 - 39,0 cm ³ /1000 strokes	0,75	2,5 (3,0)
	600	21,5 - 22,5 cm ³ /1000 strokes	0	
1.4 Idle regulation	375	6,0 - 10,0 cm ³ /1000 strokes	0	2,0 (3,0)
	2100	9,0 - 15,0 cm ³ /1000 strokes	0,75	
1.6 Start	100	min. 35,0 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	750	1500	1980
LDA=0,75 bar	mm	0,1-0,9 (0-1,2)	(1,0-2,4)	3,1-3,9 (2,8-4,2)
2.2 Supply pump	n = rev/min	600		1980
LDA=0,75 bar	bar (kgf/cm ²)	2,4 - 3,0		6,1 - 6,7
Overflow delivery	n = rev/min	600		1980 (0,75 bar)
	cm ³ /10 s	42-83 (27-98)		55-138 (40-153)

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2200	max. 3,0	0,75
	2100	(8,0-16,0)	0,75
	1980	33,5-35,5 (32,2-36,8)	0,75
	1500	(36,2-40,8)	0,75
	750*	29,0-30,0 (27,2-31,8)	0,30
	600	33,0-36,0 (31,5-37,5)	0,75
	600	(19,0-25,0)	0
	switch-off		
electr.	400	0	
Idle stop	450	max. 3,0	
	375	(4,0-12,0)	
	400	min. 18,0	
	500	max. 25,0	

3. Dimensions <small>for assembly and adjustment</small>	
Designation	mm
K	3,2-3,4
KF	6,4-6,6
MS	1,0-1,2
SVS	3,8
AXK	18,8-20,8
^B XL	9,8-13,2

Observations
* LDA-stroke 4,5 mm
Use adjusting nut (46) to correct.

2.4 Solenoid	cut-in voltage	min. 10,0 V rated voltage 12 V.
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Test Specifications Distributor-type Fuel-injection Pumps

En

VE 4/9 F 2125 L 208

Overflow temperature 45° C

supersedes
company: KIA
engine: S2 44 kW

0 460 494 169

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1400	4,9-5,3 mm		
1.2 Supply-pump pressure	1400	4,8-5,4 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-		cm ³ /1000 strokes	
Full-load delivery without charge-air pressure	1400	38,8-39,8 cm ³ /1000 strokes		2,5 (3,0)
1.4 Idle regulation	300	8,0-12,0 cm ³ /1000 strokes		2,0 (3,0)
1.5 Full-speed regulation	2300	20,0-26,0 cm ³ /1000 strokes		
1.6 Start	100	min. 50,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	800	1400	1800
	mm	1,2-2,0(0,9-2,3)	(4,4-5,8)	7,3-8,1(7,0-8,4)
2.2 Supply pump	n = rev/min	500	1800	
	bar (kgf/cm ²)	1,8-2,4	6,1-6,7	
Overflow delivery	n = rev/min	500	2125	
	cm ³ /10 s	42-83(27-98)	55-138(40-153)	

2.3 Fuel deliveries				3. Dimensions <small>for assembly and adjustment mm</small>	
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)	Designation	mm
End stop	2600	max. 2,0		K	3,2-3,4
	2450	3,0-9,0 (2,0-10,0)			
	2300	(19,0-27,0)			
	2100	33,6-35,6 (32,3-36,9)			
	1400	(37,0-41,6)			
	800	33,8-36,8 (33,0-37,6)			
	500	31,5-34,5 (30,0-36,0)			
switch-off				XK	17,0-19,0
				XL	13,3-16,7
Idle stop	300	(6,0-14,0)		Observations	
	350	1,0-5,0			
End stop	200	min. 45,0			
	300	max. 45,0			
2.4 Solenoid	cut-in voltage	min. 10,0 V			
		rated voltage 12 V.			

Test Specifications Distributor-type Fuel-injection Pumps

VE 6/12 F 1150 R 225-4
 0 460 426 071
 DHK: 1 688 901 027/250 + 3 bar
 Fuel injection test tubing 1 680 750 017

supersedes—
 company: CDC
 engine: 6 BT - 5.9

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	750	4,5-4,9 mm		
1.2 Supply-pump pressure	750	3,8-4,4 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-		cm ³ /1000 strokes	
Full-load delivery without charge-air pressure	900	72,0-73,0 cm ³ /1000 strokes		4,0
1.4 Idle regulation	375	8,0-14,0 cm ³ /1000 strokes		5,5
1.5 Full-speed regulation	1190	54,0-60,0 cm ³ /1000 strokes		
1.6 Start	100	min. 60,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	400	750	900
	mm	1,7-2,5 (1,4-2,8)	(4,0-5,4)	5,2-6,0 (4,9-6,3)
2.2 Supply pump	n = rev/min	400	900	1150
	bar (kgf/cm ²)	2,3-2,9	4,4-5,0	5,4-6,0
Overflow delivery	n = rev/min	500	1150	
	cm ³ /10 s	42-83 (27-98)	55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1300	max. 2,0	
	1240	21,0-29,0 (20,0-30,0)	
	1190	(52,0-62,0)	
	1150	66,5-69,5 (65,0-71,0)	
	900	(69,5-75,5)	
	750	70,5-74,5 (69,5-75,5)	
	500	54,0-62,0 (54,0-62,0)	
switch-off			
Idle stop	300	31,5-40,5 (31,5-40,5)	
	375	(6,5-15,5)	
	450	max. 4,0	
End stop	130	min. 70,0	
	240	max. 60,0	

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,4
MS	0,9-1,1
SVS	0,6
XK	20,2-22,2
XL	11,5-14,9

Observations
 Stop check electric shutoff device at 375 min/1

2.4 Solenoid cut-in voltage min. 10 V
 rated voltage 12 V.

Test Specifications Fuel Injection Pumps and Governors

40

(1A)

WPP 001/4 LOM 3,7 a
2. Edition

En

PES 4 A 80 D 420 LS 1345 RSV 350-1300 A5B 2183 R
Komb.-Nr. 0 400 474 160 " A5C 2183 R

supersedes 10.83
company Lombardini
engine LDA 934

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,65-2,85) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	9,5-9,6	6,0-6,1	0,25 (0,4)			
350	6,4-6,6	0,7-1,3	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	mm	rev/min	mm
2	3					8	9	10	11	
loose	800	0,3-1,0	-	-	-	ca. 17	350	6,0	-	-
		x = 3,0					100	min. 19,5		
							350	6,4-6,6		
ca. 51	8,5	1290-1300					425-485	= 2,0		
2a	4,0	1350-1380								
	1490	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	60,0-61,0 (58,5-62,5)	1290-1300*	-	-	100	118,0-128,0 (115,0-131,0) = 19,5 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.85

C22

C22

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 m 1
2. Edition

En

PES 6 A 80 D 410 RS 2085X RSV350-1400A2B1052DL
Komb.-Nr. 0 400 876 188 A2C1052 L

superseded **6.81**
company Daimler-Benz
engine: OM 352
81 kW (110 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$ mm (from BDC)
(2,1-2,3)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	9,0-9,1	5,2 - 5,3	0,2(0,35)			
350	6,8-7,0	0,9 - 1,5	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	loose	350	6,9	1400	9,0-9,1
	x = 4,0						100	min. 19,0	500	9,8-9,9
							350	6,8-7,0	750	9,6-9,8
ca. 50	8,2	1440-1450					600-660	= 2,0mm	950	9,1-9,4
⑤	4,0	1515-1545								
	1680	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min		rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9
1400	52,0 - 53,0 (50,5 - 54,5)	1440-1450	500	46,0 - 48,0 (44,0 - 50,0)	100	78,0 - 88,0 = 14,2- 14,6 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MAN 9,7 1 3

En 4. Edition

Testoil-ISO 4113

PES 6 A 95 D 410 RS 2108 R
Komb.-Nr. 0 400 876 304

RSV 550-1100 A 1 B 607 L
A 1 C 607 L

supersedes 5.84
company MAN-RABA
engine D 2356 HM6
50 kW (204 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{1,7-1,8}{(1,65-1,85)}$ mm (from BDC)RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1080	12,7+0,1	11,5 - 11,7	0,35(0,6)			
550	6,4 - 6,6	1,1 - 1,7	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 25	550	6,0	1080	12,7+0,1
ca. 50	X	= 3,25					100	min. 19,5	400	12,7+0,2
⑤	1120-1170-1330	130=11,7 120= 4,0 = 0,3-1,7					550	6,4-6,6	250	13,9+0,5
							725	max. 1,0		
							625-685	2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min	cm ³ /1000 strokes	Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm	
	1	2	3	4	5	6	7	8	9
	1080	114,5-116,5 (112,5-118,5)	1140-1150*	700	110,0-113,0 (108,0-115,0)	-	-	-	-
				500	max. 112,0 (max. 114,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps and Governors

En

Testoil-ISO 4113

PES 2 A 75 D..RS1235,1252,1298
 3 80 ..RS1236,1239,1299
 4 ..RS1237,1246,1276,1301
 6 ..RS1238,1302

A7C505 R
 EP/RSV 300-1000 A7B505DR
 EP/RSV 325-1500 A2B505DR
 A2C505 R

supersedes 3.84
 company: M W M
 engine: D 208 -
 D 308 -
 D 225 - 2..6
 D 325 -
 D 226 -
 D 327 -

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,2-2,3}
 (2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery "C" und "D" cm ³ /100 strokes 3 7,5 Ø	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery "C" und "D" cm ³ /100 strokes 3 8 Ø	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,2 - 6,6	0,4	9	4,1 - 4,5	
	9	3,2 - 3,7		6	1,2 - 2,0	
200	9	2,1 - 2,8		9	2,7 - 3,7	

Adjust the fuel delivery from each outlet according to the values in
 As from FD 823 the idle auxiliary-spring has been changed
 from 1 424 641 000 to ... 001. New values enclosed.

B. Governor Settings

300-1000

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.68	1000 1050 1100	16,0 8,5 2,4	without auxiliary spring			ca.25	300	7,0	-	-
ca.67 ⑤	1030 1070 1120	8,0-9,0 2,0-4,0 0,3-1,0	with auxiliary spring				100 300 390-450	min.19,5 7,4-7,6 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	7	rev/min 8	Control rod travel mm 9
page		3 - 33 !							

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

325-1500

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 58	1500	16,0	without auxiliary spring	ca. 16	325	7,0	100 325 445-505	min. 19,5 7,4-7,6 2,0	-	-
	1580	9,0								
	1630	4,2								
ca. 56	1530	8,0-9,0	with auxiliary spring	⑤	1580	3,0-4,0	-	-	-	-
	1720	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
page	3 - 33 !				100	95,0-105,0 (92,0-108,0) - 19,5-21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

The rating plate ~~on the~~ described on MM 1.5 a has recently been modified to enable more precise adjustment on governors with torque control. The modification was carried out in columns n = engine speed and Q = (full-load quantity). Testing was extended to two speeds and two quantities.

Deviating from the instructions WPP ool/4, 1. Supplement "Adjustment of the governor and the pump", the following points now apply:

- (2) Adjustment as per rating plate n = 1 (1st speed) and Q = (1st quantity; or according to columns 1 and 2.
- (3) Adjustment is carried out until the control-rod travel changes, as read under (2), or (with the new rating plate) until the 2nd quantity is reached at the second speed; or as per columns 4 and 5.
- (6) Is to be adjusted as per rating plate n = (1st speed + 20 min⁻¹); or as per column 3.

In the case of repairs to Fendt tractors on which the new rating plate has not yet been attached (2nd speed and 2nd quantity), the full-load data applies, listed as per engine types, in accordance with the above instructions.

With new replacement pumps delivered from the Stuttgart warehouse, the spring retainer is not fitted! Order from MWM Co using the old rating plate.

Full-load data for Fendt tractors - Engine D 200/300

- Only valid for engines with pumps PES 3 A 75 C 320/3 RS 1236 and 9
- PES 4 A 75 C 320/3 RS 1237

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed imitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

Fendt tractors- Output at speed - Engine and tractor type per-

32 PS / 2100 min⁻¹ - D 208 - 3 - Farmer 2 D -

1050 36,0 - 37,0 1070 700 39,0 - 41,0

32 PS / 1050 min⁻¹ - D 308 - 3 - 231 GT -

975 36,0 - 37,0 990 700 39,0 - 41,0

38 PS / 2600 min⁻¹ - D 208 - 3 - Farmer 2 -

1300 35,0 - 36,0 1320 700 36,0 - 38,0

55 PS / 2400 min⁻¹ - D 208 - 4 - Farmer 4 S -

1200 41,0 - 42,0 1220 700 42,0 - 44,0

General fitting - Output at speed

D 208 - 2

F 31 PS / 3000 min⁻¹

1500 41,5 - 43,5 1520

B 30 PS / 3000 min⁻¹

1500 39,5 - 41,5 1520

A 28 PS / 3000 min⁻¹

1500 41,5 - 43,5 1520

F 30 PS / 2800 min⁻¹

1400 41,5 - 43,5 1420

B 29 PS / 2800 min⁻¹

1400 40,0 - 42,0 1420

A 27 PS / 2800 min⁻¹

1400 41,5 - 43,5 1420

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

F 29 PS / 2600 min⁻¹

1300 43,0 - 45,0 1320

B 28 PS / 2600 min⁻¹

1300 41,0 - 43,0 1320

A 26 PS / 2600 min⁻¹

1300 42,5 - 44,5 1320

F 28 PS / 2500 min⁻¹

1250 42,5 - 44,5 1270

B 27 PS / 2500 min⁻¹

1250 40,5 - 42,5 1270

A 25 PS / 2500 min⁻¹

1250 41,5 - 43,5 1270

F 27 PS / 2400 min⁻¹

1200 42,0 - 44,0 1220

B 26 PS / 2400 min⁻¹

1200 40,0 - 42,0 1220

A 24 PS / 2400 min⁻¹

1200 41,0 - 43,0 1220

F 26 PS / 2300 min⁻¹

1150 41,5 - 43,5 1170

B 25 PS / 2300 min⁻¹

1150 39,5 - 41,5 1170

A 23 PS / 2300 min⁻¹

1150 40,5 - 42,5 1170

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

F 25 PS / 2200 min⁻¹

1100 41,0 - 43,0 1120

B 24 PS / 2200 min⁻¹

1100 39,0 - 41,0 1120

A 22 PS / 2200 min⁻¹

1100 40,0 - 42,0 1120

F 24 PS / 2100 min⁻¹

1050 40,5 - 42,5 1060

B 23 PS / 2100 min⁻¹

1050 38,0 - 40,0 1060

A 21 PS / 2100 min⁻¹

1050 39,0 - 41,0 1060

F 23 PS / 2000 min⁻¹

1000 39,0 - 41,0 1010

B 22 PS / 2000 min⁻¹

1000 37,0 - 39,0 1010

A 20 PS / 2000 min⁻¹

1000 38,0 - 40,0 1010

B 20 PS / 1800 min⁻¹

900 36,0 - 38,0 910

A 18 PS / 1800 min⁻¹

900 36,5 - 38,5 910

B 16 PS / 1500 min⁻¹

750 34,0 - 36,0 760

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

A 15 PS / 1500 min⁻¹

750 36,0 - 38,0 760

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

F 46,5 PS / 3000 min⁻¹
 1500 42,0 - 44,0 1520

B 45 PS / 3000 min⁻¹
 1500 39,0 - 41,0 1520

A 42 PS / 3000 min⁻¹
 1500 40,5 - 42,5 1520

F 45 PS / 2800 min⁻¹
 1400 42,0 - 44,0 1420

B 43,5 PS / 2800 min⁻¹
 1400 39,0 - 41,0 1420

A 40,5 PS / 2800 min⁻¹
 1400 40,0 - 42,0 1420

F 43,5 PS / 2600 min⁻¹
 1300 41,5 - 43,5 1320

B 42 PS / 2600 min⁻¹
 1300 39,5 - 41,5 1320

A 39 PS / 2600 min⁻¹
 1300 40,0 - 42,0 1320

F 42 PS / 2500 min⁻¹
 1250 40,5 - 42,5 1270

B 40,5 PS / 2500 min⁻¹
 1250 38,5 - 40,5 1270

A 37,5 PS / 2500 min⁻¹
 1250 39,5 - 41,5 1270

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

F 40,5 PS / 2400 min⁻¹

1200 40,5 - 42,5 1220

B 39 PS / 2400 min⁻¹

1200 38,5 - 40,5 1220

A 36 PS / 2400 min⁻¹

1200 39,5 - 41,5 1220

F 39 PS / 2300 min⁻¹

1150 39,5 - 41,5 1170

B 37,5 PS / 2300 min⁻¹

1150 38,0 - 40,0 1170

A 34,5 PS / 2300 min⁻¹

1150 38,0 - 40,0 1170

F 37,5 PS / 2200 min⁻¹

1100 38,5 - 40,5 1120

B 36 PS / 2200 min⁻¹

1100 36,5 - 38,5 1120

A 33 PS / 2200 min⁻¹

1100 38,0 - 40,0 1120

F 36 PS / 2100 min⁻¹

1050 38,0 - 40,0 1060

B 34,5 PS / 2100 min⁻¹

1050 36,0 - 38,0 1060

A 31,5 PS / 2100 min⁻¹

1050 36,0 - 38,0 1060

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

F 34,5 PS / 2000 min⁻¹
 1000 37,0 - 39,0 1010

B 33 PS / 2000 min⁻¹
 1000 35,5 - 37,5 1010

A 30 PS / 2000 min⁻¹
 1000 37,0 - 39,0 1010

3 30 PS / 1800 min⁻¹
 900 34,0 - 36,0 910

A 27 PS / 1800 min⁻¹
 900 35,0 - 37,0 910

B 24 PS / 1500 min⁻¹
 750 33,0 - 35,0 760

A 22,5 PS / 1500 min⁻¹
 750 36,0 - 38,0 760

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

F 62 PS / 3000 min⁻¹
1500 40,5 - 42,5 1520

B 60 PS / 3000 min⁻¹
1500 39,0 - 41,0 1520

A 56 PS / 3000 min⁻¹
1500 40,0 - 42,0 1520

F 60 PS / 2800 min⁻¹
1400 40,0 - 42,0 1420

B 58 PS / 2800 min⁻¹
1400 35,5 - 37,5 1420

A 54 PS / 2800 min⁻¹
1400 40,0 - 42,0 1420

F 53 PS / 2600 min⁻¹
1300 40,0 - 42,0 1320

B 56 PS / 2600 min⁻¹
1300 38,0 - 40,0 1320

A 52 PS / 2600 min⁻¹
1300 39,0 - 41,0 1320

F 56 PS / 2500 min⁻¹
1250 39,0 - 41,0 1270

B 54 PS / 2500 min⁻¹
1250 37,5 - 39,5 1270

A 50 PS / 2500 min⁻¹
1250 39,0 - 41,0 1270

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

F 54 PS / 2400 min⁻¹
1200 39,0 - 41,0 1220

B 52 PS / 2400 min⁻¹
1200 37,5 - 39,5 1220

A 48 PS / 2400 min⁻¹
1200 38,0 - 40,0 1220

F 52 PS / 2300 min⁻¹
1150 38,0 - 40,0 1170

B 50 PS / 2300 min⁻¹
1150 36,5 - 38,5 1170

A 46 PS / 2300 min⁻¹
1150 37,5 - 39,5 1170

F 50 PS / 2200 min⁻¹
1100 39,0 - 41,0 1120

B 48 PS / 2200 min⁻¹
1100 37,0 - 39,0 1120

A 44 PS / 2200 min⁻¹
1100 38,0 - 40,0 1120

F 48 PS / 2100 min⁻¹
1050 37,5 - 39,5 1060

B 46 PS / 2100 min⁻¹
1050 35,5 - 37,5 1060

A 42 PS / 2100 min⁻¹
1050 36,0 - 38,0 1060

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

F 46 PS / 2000 min⁻¹
1000 38,0 - 40,0 1010

B 44 PS / 2000 min⁻¹
1000 35,5 - 37,5 1010

A 40 PS / 2000 min⁻¹
1000 36,0 - 38,0 1010

B 40 PS / 1800 min⁻¹
900 34,5 - 36,5 910

A 36 PS / 1800 min⁻¹
900 34,0 - 36,0 910

B 32 PS / 1500 min⁻¹
750 30,5 - 32,5 760

A 30 PS / 1500 min⁻¹
750 33,0 - 35,0 760

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

F 93 PS / 3000 min⁻¹
 1500 39,5 - 41,5 1520

B 90 PS / 3000 min⁻¹
 1500 38,0 - 40,0 1520

A 84 PS / 3000 min⁻¹
 1500 39,0 - 41,0 1520

F 90 PS / 2800 min⁻¹
 1400 39,5 - 41,5 1420

B 87 PS / 2800 min⁻¹
 1400 38,0 - 40,0 1420

A 81 PS / 2800 min⁻¹
 1400 39,0 - 41,0 1420

F 87 PS / 2600 min⁻¹
 1300 39,5 - 41,5 1320

B 84 PS / 2600 min⁻¹
 1300 38,0 - 40,0 1320

A 78 PS / 2600 min⁻¹
 1300 38,5 - 40,5 1320

F 84 PS / 2500 min⁻¹
 1250 39,0 - 41,0 1270

B 81 PS / 2500 min⁻¹
 1250 37,0 - 39,0 1270

A 75 PS / 2500 min⁻¹
 1250 38,0 - 40,0 1270

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

F 81 PS / 2400 min⁻¹
1200 38,0 - 40,0 1220

B 78 PS / 2400 min⁻¹
1200 36,5 - 38,5 1220

A 72 PS / 2400 min⁻¹
1200 38,0 - 40,0 1220

F 78 PS / 2300 min⁻¹
1150 38,0 - 40,0 1170

B 75 PS / i 2300 min⁻¹
1150 36,5 - 38,5 1170

A 69 PS / 2300 min⁻¹
1150 37,0 - 39,0 1170

F 75 PS / 2200 min⁻¹
1100 38,0 - 40,0 1120

B 72 PS / 2200 min⁻¹
1100 36,0 - 38,0 1120

A 66 PS / 2200 min⁻¹
1100 37,0 - 39,0 1120

F 72 PS / 2100 min⁻¹
1050 37,0 - 39,0 1060

B 69 PS / 2100 min⁻¹
1050 35,5 - 37,5 1060

A 63 PS / 2100 min⁻¹
1050 36,0 - 38,0 1060

Testoil ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

F 69 PS / 2000 min⁻¹
1000 36,5 - 38,5 1010

B 66 PS / 2000 min⁻¹
1000 34,5 - 36,5 1010

A 60 PS / 2000 min⁻¹
1000 35,0 - 37,0 1010

B 60 PS / 1800 min⁻¹
900 33,5 - 35,5 910

A 54 PS / 1800 min⁻¹
900 34,0 - 36,0 910

B 48 PS / 1500 min⁻¹
750 31,0 - 33,0 760

A 45 PS / 1500 min⁻¹
750 33,0 - 35,0 760

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 35,5 PS / 3000 min⁻¹

1500 55,0 - 57,0 1520 800 52,5 - 55,5

A 32 PS / 3000 min⁻¹

1500 51,0 - 53,0 1520

F 41 PS / 2800 min⁻¹

1400 66,5 - 68,5 1420 800 55,5 - 58,5

F 38,5 PS / 2500 min⁻¹

1250 62,5 - 64,5 1270 800 55,5 - 58,5

B 37 PS / 2500 min⁻¹

1250 59,5 - 61,5 1270 800 52,5 - 55,5

A 34 PS / 2500 min⁻¹

1250 55,5 - 57,5 1270

F 36,5 PS / 2300 min⁻¹

1150 60,5 - 62,5 1170 800 55,5 - 58,5

B 35 PS / 2300 min⁻¹

1150 58,5 - 60,5 1170 800 52,5 - 55,5

A 32 PS / 2300 min⁻¹

1150 53,0 - 55,0 1170

F 33 PS / 2000 min⁻¹

1000 58,5 - 60,5 1010 750 55,0 - 58,0

B 31 PS / 2000 min⁻¹

1000 55,0 - 57,0 1010 750 52,5 - 55,5

A 28,5 PS / 2000 min⁻¹

1000 50,0 - 52,0 1010

Testoil ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

①

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 28,5 PS / 1800 min⁻¹

900 52,5 - 54,5 910 750 52,0 - 55,0

A 26 PS / 1800 min⁻¹

900 48,0 - 50,0 910

B 24 PS / 1500 min⁻¹

750 46,5 - 48,5 760 750 50,5 - 53,5

A 22 PS / 1500 min⁻¹

750 51,0 - 53,0 760

Testoil ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 53 PS / 3000 min⁻¹

1500 54,5 - 56,5 1520 800 51,0 - 54,0

A 48 PS / 3000 min⁻¹

1500 50,5 - 52,5 1520

F 62 PS / 2800 min⁻¹

1400 66,5 - 68,5 1420 800 54,0 - 57,0

F 58 PS / 2500 min⁻¹

1250 62,5 - 64,5 1270 800 54,0 - 57,0

B 56 PS / 2500 min⁻¹

1250 59,5 - 61,5 1270 800 51,0 - 54,0

A 51 PS / 2500 min⁻¹

1250 54,5 - 56,5 1270

F 55 PS / 2300 min⁻¹

1150 58,5 - 60,5 1170 800 54,0 - 57,0

B 53 PS / 2300 min⁻¹

1150 57,5 - 59,5 1170 800 51,0 - 54,0

A 48 PS / 2300 min⁻¹

1150 51,5 - 53,5 1170

F 49,5 PS / 2000 min⁻¹

1000 57,5 - 59,5 1010 750 54,0 - 57,0

B 46,5 PS / 2000 min⁻¹

1000 53,5 - 55,5 1010 750 51,0 - 54,0

A 43 PS / 2000 min⁻¹

1000 48,5 - 50,5 1010

Test oil ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 43 PS / 1800 min⁻¹

900 52,5 - 54,5 910 750 52,0 - 55,0

A 39 PS / 1800 min⁻¹

900 47,5 - 49,5 910

B 36 PS / 1500 min⁻¹

750 49,5 - 51,5 760 650 49,0 - 52,0

A 33 PS / 1500 min⁻¹

750 45,5 - 47,5 760

Testoil ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 71 PS / 3000 min⁻¹

1500 54,5 - 56,5 1520 800 62,0 - 65,0

A 64 PS / 3000 min⁻¹

1500 49,5 - 51,5 1520

F 83 PS / 2800 min⁻¹

1400 65,5 - 67,5 1420 800 63,0 - 66,0

F 78 PS / 2500 min⁻¹

1250 61,5 - 63,5 1270 800 50,0 - 53,0

B 74,5 PS / 2500 min⁻¹

1250 58,5 - 60,5 1270 800 50,0 - 53,0

A 68 PS / 2500 min⁻¹

1250 53,5 - 55,5 1270

F 73 PS / 2300 min⁻¹

1150 60,5 - 62,5 1170 800 52,0 - 55,0

B 71 PS / 2300 min⁻¹

1150 58,5 - 60,5 1170 800 50,0 - 53,0

A 64 PS / 2300 min⁻¹

1150 51,5 - 53,5 1170

F 66 PS / 2000 min⁻¹

1000 57,5 - 59,5 1010 750 52,0 - 55,0

B 62,5 PS / i 2000 min⁻¹

1000 53,5 - 55,5 1010 750 50,0 - 53,0

A 57 PS / 2000 min⁻¹

1000 48,5 - 50,5 1010

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 57 PS / 1800 min⁻¹

900 51,5 - 53,5 910 750 49,0 - 52,0

A 52 PS / 1800 min⁻¹

900 45,5 - 47,5 910

B 48 PS / 1500 min⁻¹

750 48,5 - 50,5 760 650 47,0 - 50,0

A 44 PS / 1500 min⁻¹

750 45,5 - 47,5 760

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 106 PS / 3000 min⁻¹

1500 55,5 - 57,5 1520 800 50,0 - 53,0

A 96 PS / 3000 min⁻¹

1500 49,5 - 51,5 1520

F 125 PS / 2800 min⁻¹

1400 66,5 - 68,5 1420 800 54,0 - 57,0

F 117 PS / 2500 min⁻¹

1250 61,5 - 63,5 1270 800 54,0 - 57,0

B 112 PS / 2500 min⁻¹

1250 58,5 - 60,5 1270 800 50,0 - 53,0

A 102 PS / 2500 min⁻¹

1250 53,5 - 55,5 1270

F 110 PS / 2300 min⁻¹

1150 59,5 - 61,5 1170 800 54,0 - 57,0

B 106 PS / 2300 min⁻¹

1150 56,5 - 58,5 1170 800 50,0 - 53,0

A 96 PS / 2300 min⁻¹

1150 51,5 - 53,5 1170

F 99 PS / 2000 min⁻¹

1000 56,5 - 58,5 1010 750 54,0 - 57,0

B 94 PS / 2000 min⁻¹

1000 53,5 - 55,5 1010 750 50,0 - 53,0

A 86 PS / 2000 min⁻¹

1000 47,5 - 49,5 1010

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 86 PS / 1800 min⁻¹
 900 49,5 - 51,5 910 750 53,0 - 56,0

A 78 PS / 1800 min⁻¹
 900 46,5 - 48,5 910

B 72 PS / 1500 min⁻¹
 750 49,5 - 51,5 760 650 47,0 - 50,0

A 66 PS / 1500 min⁻¹
 750 45,5 - 47,5 760

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

F 33 PS / 2800 min⁻¹

1400 51,5 - 53,5 1420 800 46,0 - 49,0

F 32 PS / 2500 min⁻¹

1250 52,5 - 54,5 1270 800 46,0 - 49,0

B 31 PS / 2500 min⁻¹

1250 49,5 - 51,5 1270 800 44,0 - 47,0

A 28 PS / 2500 min⁻¹

1250 49,5 - 51,5 1270

F 30 PS / 2300 min⁻¹

1150 48,5 - 50,5 1170 800 46,0 - 49,0

B 28,5 PS / 2300 min⁻¹

1150 45,5 - 47,5 1170 800 44,0 - 47,0

A 26 PS / 2300 min⁻¹

1150 45,5 - 47,5 1170

F 26 PS / 2000 min⁻¹

1000 43,5 - 45,5 1010 800 46,0 - 49,0

B 25 PS / 2000 min⁻¹

1000 41,5 - 43,5 1010 800 44,0 - 47,0

A 23 PS / 2000 min⁻¹

1000 41,5 - 43,5 1010

A 21 PS / 1800 min⁻¹

900 41,5 - 43,5 910

A 17 PS / 1500 min⁻¹

750 39,5 - 41,5 760

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

F 50 PS / 2800 min⁻¹

1400 48,5 - 50,5 1420 800 46,0 - 49,0

F 48,5 PS / 2500 min⁻¹

1250 50,5 - 52,5 1270 800 46,0 - 49,0

B 46,5 PS / 2500 min⁻¹

1250 47,5 - 49,5 1270 800 43,0 - 46,0

A 42 PS / 2500 min⁻¹

1250 47,5 - 49,5 1270

F 46 PS / 2300 min⁻¹

1150 47,5 - 49,5 1170 800 46,0 - 49,0

B 44 PS / 2300 min⁻¹

1150 45,5 - 47,5 1170 800 43,0 - 46,0

A 40 PS / 2300 min⁻¹

1150 45,5 - 47,5 1170

F 40 PS / 2000 min⁻¹

1000 44,5 - 46,5 1010 800 46,0 - 49,0

B 38,5 PS / 2000 min⁻¹

1000 42,5 - 44,5 1010 800 43,0 - 46,0

A 35 PS / 2000 min⁻¹

1000 42,5 - 44,5 1010

A 31,5 PS / 1800 min⁻¹

900 40,5 - 42,5 910

A 26 PS / 1500 min⁻¹

750 39,5 - 41,5 760

Testoil ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

F 68 PS / 2800 min⁻¹

1400 49,5 - 51,5 1420 800 46,0 - 49,0

F 66 PS / 2500 min⁻¹

1250 50,5 - 52,5 1270 800 46,0 - 49,0

B 63 PS / 2500 min⁻¹

1250 47,5 - 49,5 1270 800 44,0 - 47,0

A 57,5 PS / 2500 min⁻¹

1250 47,5 - 49,5 1270

F 61 PS / 2300 min⁻¹

1150 47,5 - 49,5 1170 800 46,0 - 49,0

B 58,5 PS / 2300 min⁻¹

1150 45,5 - 47,5 1170 800 44,0 - 47,0

A 53,5 PS / 2300 min⁻¹

1150 45,5 - 47,5 1170

F 53 PS / 2000 min⁻¹

1000 43,5 - 45,5 1010 800 46,0 - 49,0

B 51 PS / 2000 min⁻¹

1000 41,5 - 43,5 1010 800 44,0 - 47,0

A 46,5 PS / 2000 min⁻¹

1000 41,5 - 43,5 1010

A 42 PS / 1800 min⁻¹

900 40,5 - 42,5 910

A 35 PS / 1500 min⁻¹

750 39,5 - 41,5 760

Testoil #0 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

F 102 PS / 2800 min⁻¹

1400 49,5 - 51,5 1420 800 46,0 - 49,0

F 99 PS / 2500 min⁻¹

1250 50,5 - 52,5 1270 800 46,0 - 49,0

B 95 PS / 2500 min⁻¹

1250 47,5 - 49,5 1270 800 44,0 - 47,0

A 86 PS / 2500 min⁻¹

1250 47,5 - 49,5 1270

F 92 PS / 2300 min⁻¹

1150 47,5 - 49,5 1170 800 46,0 - 49,0

B 88 PS / 2300 min⁻¹

1150 45,5 - 47,5 1170 800 44,0 - 47,0

A 80 PS / 2300 min⁻¹

1150 45,5 - 47,5 1170

F 80 PS / 2000 min⁻¹

1000 43,5 - 45,5 1010 800 46,0 - 49,0

B 77 PS / 2000 min⁻¹

1000 41,5 - 43,5 1010 800 44,0 - 47,0

A 70 PS / 2000 min⁻¹

1000 41,5 - 43,5 1010

A 63 PS / 1800 min⁻¹

900 40,5 - 42,5 910

A 52,5 PS / 1500 min⁻¹

750 39,5 - 41,5 760

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 48 PS / 3000 min⁻¹

1500 47,0 - 49,0 1520 800 49,5 - 52,5

A 43,5 PS / 3000 min⁻¹

1500 44,0 - 46,0 1520

F 55 PS / 2800 min⁻¹

1400 53,5 - 55,5 1420 800 52,5 - 55,5

F 53 PS / 2500 min⁻¹

1250 55,5 - 57,5 1270 800 52,5 - 55,5

B 50 PS / 2500 min⁻¹

1250 52,5 - 54,5 1270 800 49,5 - 52,5

A 46,5 PS / 2500 min⁻¹

1250 48,0 - 50,0 1270

F 50 PS / 2300 min⁻¹

1150 56,0 - 58,0 1170 800 51,0 - 54,0

B 48,5 PS / 2300 min⁻¹

1150 51,5 - 53,5 1170 800 49,5 - 52,5

A 44 PS / 2300 min⁻¹

1150 47,0 - 49,0 1170

F 46 PS / 2000 min⁻¹

1000 54,0 - 56,0 1010 750 52,5 - 55,5

B 44 PS / 2000 min⁻¹

1000 50,5 - 52,5 1010 750 50,0 - 53,0

A 40 PS / 2000 min⁻¹

1000 46,0 - 48,0 1010

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 40 PS / 1800 min⁻¹

900 49,5 - 51,5 910 750 50,0 - 53,0

A 36,5 PS / 1800 min⁻¹

900 45,0 - 47,0 910

B 33,5 PS / 1500 min⁻¹

750 47,5 - 49,5 760

A 30,5 PS / 1500 min⁻¹

750 43,5 - 45,5 760

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque control travel:	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 64 PS / 3000 min⁻¹

1500 47,5 - 49,5 1520 800 49,0 - 52,0

A 58 PS / 3000 min⁻¹

1500 44,0 - 46,0 1520

F 74 PS / 2800 min⁻¹

1400 53,5 - 55,5 1420 800 52,0 - 55,0

F 70,5 PS / 2500 min⁻¹

1250 52,5 - 54,5 1270 800 52,0 - 55,0

B 67 PS / 2500 min⁻¹

1250 49,0 - 51,0 1270 800 49,0 - 52,0

A 61 PS / 2500 min⁻¹

1250 44,5 - 46,5 1270

F 67 PS / 2300 min⁻¹

1150 51,5 - 53,5 1170 800 52,0 - 55,0

B 64,5 PS / 2300 min⁻¹

1150 49,0 - 51,0 1170 800 49,0 - 52,0

A 58,5 PS / 2300 min⁻¹

1150 44,5 - 46,5 1170

F 61 PS / 2000 min⁻¹

1000 50,0 - 52,0 1010 750 49,5 - 52,5

B 58,5 PS / 2000 min⁻¹

1000 48,0 - 50,0 1010 750 49,5 - 52,5

A 53 PS / 2000 min⁻¹

1000 44,0 - 46,0 1010

Testoil ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 53 PS / 1800 min⁻¹

900 47,0 - 49,0 910 750 49,5 - 52,5

A 49 PS / 1800 min⁻¹

900 43,0 - 45,0 910

B 44,5 PS / 1500 min⁻¹

750 47,0 - 49,0 760

A 41 PS / 1500 min⁻¹

760 43,0 - 45,0 760

Testoil ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 96 PS / 3000 min⁻¹

1500 51,5 - 53,5 1520 800 50,0 - 53,0

A 87 PS / 3000 min⁻¹

1500 47,5 - 49,5 1520

F 112 PS / 2800 min⁻¹

1400 58,0 - 60,0 1420 800 53,0 - 56,0

F 106 PS / 2500 min⁻¹

1250 57,5 - 59,5 1270 800 53,0 - 56,0

B 101 PS / 2500 min⁻¹

1250 54,0 - 56,0 1270 800 50,0 - 53,0

A 92 PS / 2500 min⁻¹

1250 49,0 - 51,0 1270

F 101 PS / 2300 min⁻¹

1150 57,5 - 59,5 1170 800 53,0 - 56,0

B 97 PS / 2300 min⁻¹

1150 55,0 - 57,0 1170 800 50,0 - 53,0

A 88 PS / 2300 min⁻¹

1150 50,0 - 52,0 1170

F 92 PS / 2000 min⁻¹

1000 52,5 - 54,5 1010 750 50,0 - 53,0

B 88 PS / 2000 min⁻¹

1000 50,0 - 52,0 1010 750 50,0 - 53,0

A 80 PS / 2000 min⁻¹

1000 45,5 - 47,5 1010

Testoil ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 80 PS / 1800 min⁻¹

900 50,0 - 52,0 910 750 50,0 - 53,0

A 73 PS / 1800 min⁻¹

900 45,5 - 47,5 910

B 67 PS / 1500 min⁻¹

750 50,0 - 52,0 760 650 52,0 - 55,0

A 61 PS / 1500 min⁻¹

750 45,5 - 47,5 760

Testoil ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PE 6 A 90 D 410 RS 2124 X RQ 375/1275 AB 658 DL
Komb.-Nr. 0 400 646 248

supersede 4.81
company Daimler-Benz
engine OM 360
125 kW (170 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,1-2,3) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	9,3-9,4	7,7 - 7,8	0,3(0,45)			
700	10,1+0,1	7,7 - 8,0	0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications		Setting point rev/min 7	Control rod travel mm 8	Test specifications		rev/min 11	Control rod travel mm 12
				rev/min 5	Control rod travel mm 6			rev/min 9	Control rod travel mm 10		
700	15,6-16,4	700	16,0	8,3 4,0	1295-1310 1345-1375	375	7,5	100 375 550 465	min. 9,0 7,4 - 7,6 max. 1,0 505=2 mm	1250 1075 895 700	9,3-9,4 9,4-9,7 9,8-10,0 10,1-10,2

Torque-control travel on flyweight assembly dimension a = 0,4 mm Speed regulation 1295 - 1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
1250	77,0 - 78,0 (75,0 - 80,0)	650	700	77,0 - 78,0 (75,0 - 80,0)	100	115,0-125,0 (112,0-128,0)

Checking values in brackets

Test Specifications Testoil-ISO 4113 Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 q

4. Edition

En

PES 6 A 90 D 410 RS 2293	EP/RSV 350-1400 A0 B1080DL (1)
RS2293	350-1425 A2 B1028DL (2)
RS2293	350-1400 A0 B 745L (3)
RS2293Z	350-1400 A0 B 745L (4)

superseded by 12.83
company: Daimler-Benz
engine: OM352 (A)
92kW (125PS - 1-2)
115kW (156PS - 3)
123kW (168PS - 4)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,5 - 5,0	0,3(0,45)			
200	6	1,8 - 2,6				
	12	7,3 - 8,2				
	9	2,0 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..1080DL (1)

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.67	1400 1450 1500	16,0 11,4 5,5	without auxiliary spring			ca.20	350	9,2	1380	0
⑤	1470 1520 1640	8,0-10,4 3,8-6,8 0,3-1,0	with auxiliary spring				100 350 500 700	19 - 21 8,9-9,5 3,6-6,2 0 - 1	600	0,2-0,3

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(1) 1400	63,0 - 64,0 (61,0 - 66,0)	1450-1460*	600	51,0 - 53,0 (49,0 - 55,0)	100	14,7-15,3		
					1520-1540	= 4,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control			
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 60	1425	16,0	without auxiliary spring	ca. 20	350	7,5	1400	0	1400	0		
	1500	11,5			200	19 - 21					800	0
	1560	6,5			350	7,2-7,8					450	0,4-0,6
⑤	1500	10,0-12,2	with auxiliary spring	ca. 20	600	1,0-4,5	1400	0	1400	0		
	1600	3,8-6,0			780	0 - 1					800	0
	1760	0,3-1,0			780	0 - 1					450	0,4-0,6

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)		Note: changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	mm RW	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
(2)	1400	60,0 - 61,0 (58,0 - 63,0)	1450-1460*	500	46,0 - 48,0 (44,0 - 50,0)	100	14,7-15,3		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

745L (3)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control			
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 63	1400	16,0	without auxiliary spring	ca. 29	350	7,9	1400	0	1400	0		
	1500	9,8			200	19 - 21					800	0
	1580	3,8			350	7,6-8,2					450	0,4-0,6
ca. 61	1400	ca. 11,9	with auxiliary spring	ca. 29	500	3,1-5,5	1400	0	1400	0		
	1525	ca. 4,6			700	0 - 1					800	0
	1650	0,3-1,0			700	0 - 1					450	0,4-0,6

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)		Note: changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
(3)	1380	74,5 - 75,5 (72,5 - 77,5)	1420-1430*			100	78,0-88,0 (75,0-91,0)	350	7,9

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 33	350	7,4	-	-
	X =						100	min.19,0		
ca. 66	10,9	1420-1430					350	7,8-8,0		
②a	4,0	1530-1560					570-630	=2,0		
	1700	0,3-1,7								

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)						
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1380	75,5-76,5 (73,5-78,5)	1420-1430*	-	-	100	78,0-88,0 (75,0-91,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)						
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 q 4
3. Edition
En

PES6A 90 D 410 RS 2293 RSV 350-1300 AOB 1101 DL
Komb.-Nr. 0 400 876 256 AOC 1101 L

supersedes 10.82
company: Daimler-Benz
engine: OM 352 A
110 kW (150 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,15-2,25}
(2,1-2,3) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	10,6+0,1	7,0 - 7,1	0,3(0,45)			
350	6,9-7,1	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 18	350	6,5	1300	10,6+0,1
	x = 3,0						100		800	10,9+0,2
							350	6,9-7,1	500	11,3+0,1
ca. 55	9,6	1340-1350					465-525	= 2,0mm		
⑤	4,0	1375-1405								
	1500	0,2-0,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	rev/min 7	Control rod travel mm 9
	1300	70,0 - 71,0 (68,0 - 73,0)	1340-1350*	500	62,0 - 64,0 (60,0 - 66,0)	100	80,0-90,0 (77,0-93,0) - 14,6 - 15,0 mm RW	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 q 8
3. Edition

En

PES 6 A 90 D 410 RS 2293
Komb.-Nr. 0 400 876 316

RSV 350-1200 AOB 1101-1 L
AOC 1101-1 L

superseded by 12.85
Daimler-Benz
company OM 352
engine 70 kW (95 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
(2,10-2,30) mm (from BDC) $RW = 9,0-12,0$ mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1200	8,4-8,5	4,5-4,6	0,3(0,45)			
350	7,1-7,3	0,8-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,7	-	-	-	-	350	7,2	1200	8,4-8,5
	$x = 4,0$						350	7,1-7,3	600	9,6-9,7
							455-515	= 2,0	850	9,3-9,5
ca. 64	7,4	1220-1230							1000	8,7-9,0
2a	4,0	1290-1320								
	1400	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit	3a Fuel delivery characteristics		Starting fuel delivery idle 5		4a Idle stop		
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
	1200	45,0-46,0 (43,0-48,0)	1220-1230*	600	43,0-45,0 (40,5-47,5)	100	78,0-88,0 (75,0-91,0) = 14,9 - 15,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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9.85

E15

EAS

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 z
2. Edition

En

PES 6 A 90 D 410 RS 2293 RSV 750-1500 A 2 B 2156 L
Komb.-Nr. 0 400 876 306 A 2 C 2156 L

supersedes 10.82
company: Daimler-Benz
engine: OM 352
45 kW (61 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1450	6,8-6,9	3,5 - 3,6	0,3 (0,45)			
750	4,9-5,1	0,7 - 1,3	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0	-	-	-	ca.40	750	5,0	-	-
ca. 6°	x =						750	4,9-5,1		
⑤	5,8	1495-1500					770-830	=2,0		
	4,0	1512-1533								
	1575	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	rev/min 7	rev/min 8	Control rod travel mm 9
	1450	34,5-35,5 (32,5-37,5)	1495-1500*	-	-	100	78,0-88,0 (75,0-91,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 q 11

2. Edition

En

PES 6 A 90 D 410 RS 2293
Komb.-Nr. 0 400 876 329

RSV 350-1100 AOC 2002-1 L

supersedes 1.85
company Daimler-Benz
engine OM 352
70 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
 $(2,10-2,30)$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1090	9,1-9,2	4,8-4,9	0,3 (0,45)			
350	7,2-7,4	0,8-1,4	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 35	350	7,3	1090	9,1-9,2
ca. 56 2a	x =						100	min. 19,5	800	10,1-10,2
	8,1	1130-1140					350	7,2-7,4	975	9,6-9,8
	4,0	1190-1220					470-530 = 2,0			
	1300	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1090	48,0-49,0 (46,0-51,0)	1130-1140*	800	53,0-55,0 (50,5-57,5)	100	78,0-88,0 (75,0-91,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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8.85

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EAT

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 q 7

3. Edition

En

PES 6 A 90 D 410 RS 2293 Z RSV 350-1300 A 0 B 1101 DL
1101-2L
Komb.-Nr. 0 400 876 257 A 0 0 1101-2L

supersede **2.85**
company Daimler-Benz
engine OM 352
70 kW (95 PS)
Unimog

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **2,15-2,25**
(2,10-2,30) mm (from BDC)

Test oil: ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1300	8,2-8,3	4,5 - 4,6	0,3(0,45)			
350	6,6-6,8	0,8 - 1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9		
loose	800	0,3-1,0	-	-	-		350	6,7	1300	8,2-8,3
ca. 63 2a	x = 4,75						100	min. 19,0	500	9,6-9,7
	7,2	1340-1350					350	6,6-6,8	900	8,9-9,1
	4,0	1395-1425					450-510	2,0	1075	8,3-8,6

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1300	44,5-45,5 (42,5-47,5)	1340-1350*	500	39,0-42,0 (36,5-44,5)	100	78,0-88,0 (75,0-91,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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8.85

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 5,5c
4. Edition

PES 6 A 90 D 410 RS 2633

RQV 300-1500 AB 1152 L

Komb.-Nr. 0 400 846 482

supersedes 8.82
company: FIAT
8060.04.661
engine: 81 kW (110 PS)

Testo-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,2-2,3}
(2,15-2,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1500	9,0-9,1	4,9-5,1	0,3 (0,49)			
300	8,2-8,4	1,1-1,7	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1525	15,2-17,8	-	-	-	ca. 17	100	min. 9,0	250	1,1-1,3
							300	8,2-8,4	570	1,5-4,8
							900	max. 1,0	1080	5,0-6,2
ca. 59	8,0	1540-1550				330-430			1500	8,3
	4,0	1635-1665								
	1800	0 - 1,0								

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1500	48,5-49,5 (46,5-51,5)	1540-1550	900	42,0-45,0 (40,0-47,0)	100	68,0-78,0 (65,0-81,0)	1500	9,0+0,1
			500	36,0-38,0 (33,5-40,5)		= 13,4-13,6 mm RW	500	9,6+0,1
							860	9,4+0,2
							1090	9,0+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2
8.85

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E19

E49

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 5,5 d

4. Edition

En

PES 6 A 90 D 410 RS 2633 RQV 300-1500 AB 1165 L

Komb.-Nr. 0 400 846 494

supersedes 5.84
company: Fiat
engine: 8060.04.662
80,8 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke ^{2,2 - 2,3}
 (2,15-2,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1500	9,1-9,2	5,3 - 5,4	0,3(0,45)			
300	7,9-8,1	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1530	15,2-17,8	-	-	-	ca. 17	100 min.	9,2	250	1,1-1,3
ca. 59	8,1 4,0 1800	1540-1550 1645-1675 0 - 1,0				815-415	300	7,9-8,1	670 1080 1500	4,5-4,8 6,0-6,2 8,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1500	52,5-53,5 (50,5-55,5)	1540-1550*	500	38,5-40,5 (36,0-43,0)	100	68,0-78,0 (65,0-81,0) = 13,2-13,6 mm RW	1500	9,1+0,1
			930	48,5-50,5 (46,0-53,0)			500	9,6+0,1
							930	9,3+0,2
							1130	9,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

E20

E20

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8.85

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 3,0 a 1

2. Edition

En

PES 3 A 90 D 410/3 RS 2640
Komb.-Nr. 0 400 863 006

RSV 325-1150 AOC 2157-1 L

supersedes 4.85
company KHD
engine F 3 L 913
37 kW /2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5-2,6$
($2,45-2,65$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1140	9,6-9,7	6,6-6,7	0,3(0,45)			
350	7,6-7,8	1,0-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 23	350	7,2	1140	9,6-9,7
	x = 4,25						350	7,6-7,8	500	9,9-10,0
							500-560	= 2,0	800	9,9-10,0
ca. 63 ②a	8,6	1175-1185							1040	9,7-9,9
	4,0	1230-1260								
	1430	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle ⑤		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1140	65,5-66,5 (63,5-68,5)	1175-1185*	500	50,5-52,5 (48,0-55,0)	100	11,0-11,4 mm RW	-	-
			800	58,5-60,5 (56,0-63,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

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7.85

E21

211

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VAL 4,4 a

4. Edition

En

PES 4 A 95 D 320 RS 2654 RSV 325-1050 A 2 B 2178 R

superseded by 5.84
company Valmet
engine 411 DS 8

Komb.-Nr. 0 400 874 236

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5-2,6$
 $(2,45-2,65)$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	9,4-9,5	7,7-7,9	0,35(0,6)			
325	4,9-5,1	1,2-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2		Intermediate rated speed 4 5 6			④ Control lever deflection in degrees 7	Lower rated speed rev/min 8		Control rod travel mm 9	③ Torque control rev/min 10	Control rod travel mm 11
	Control rod travel mm	Control rod travel mm rev/min					rev/min	Control rod travel mm			
loose	800	0,3-1,0	-	-	-	ca.25	325	4.5		1050	9,4-9,5
		x = 5,0					100	min.19,5		500	10,4-10,5
							325	4,9-5,1		840	9,9-10,1
ca.47	8,4	1090-1100					405-465	=2,0			
②a	4,0	1140-1170									
	1305	0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		cm ³ /1000 strokes 2		⑥ Rotational speed limit Note changed to) rev/min 3	③a Fuel delivery characteristics rev/min 4		cm ³ /1000 strokes 5		Starting fuel delivery Idle rev/min 6		cm ³ /1000 strokes 7		④a Idle stop rev/min 8	Control rod travel mm 9
1050		77,0-79,0 (75,0-81,0)		1090-1100*	500	76,0-79,0 (73,5-81,5)			100	185,0-195,0 (182,0-198,0)			325	5,0
					750	82,5-84,5 (80,0-87,0)				=19,5-21,0 mm RW				

Checking values in brackets

* 1 mm less control rod travel than col 2

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Testoil-ISO 4113

E22

E22

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VAL 3,3 a

5. Edition

PES 3 A 95 D 320 RS 2655 RSV 325-1150 A 2 B 2178-1 R

superseded by 5.84
Valmet
company 311 DS 6
engine

Komb.-Nr. 0 400 873 032
1-2-3 je 120° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,5-2,6} (2,45-2,65) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	9,4-9,5	7,8-8,0	0,35(0,6)			
325	4,9-5,1	1,0-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.24	325	4,5	1150	9,4-9,5
	x= 5,0						100	min.19,5	500	11,1-11,2
ca.50	8,4	1090-1200					325	4,9-5,1	915	10,2-10,4
2a	4,0	1240-1270					405-465	=2,0		
	1405	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp. 40°C (104°F)	Note: changed to .) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1150	78,0-80,0 (76,0-82,0)	1190-1200*	500	86,0-88,0 (83,5-90,5)	100	185,0-195,0 =19,5-21,0 mm RW	0 -	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 4,1 b

3. Edition

En

PES 4 A 90 D 320/3 RS 2659

RSV 325-1500 A2B 505-2 R

superseded by 5.84

Komb.-Nr. 0 400 864 057

A2C 505-2 R

company MWM

engine D 266 B-4

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,95-3,05$
 $(2,90-3,10)$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1500	10,5+0,1	9,0-9,1	0,3 (0,45)			
325	6,4-6,6	1,1-1,7	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9		
loose	800	0,3-1,0	-	-	-	ca.27	325	6,0	-	-
ca.66 2a	9,5	1540-1550					100	min.19,5		
	4,0	1590-1620					325	6,4-6,6		
	1780	0,3-1,7					460-520	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1500	89,5-90,5 (87,5-92,5)	1540-1550*	-	-	100	131,0-141,0 (128,0-144,0) = 19,5- 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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7.85

E24

E24

Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PES 4 M 55 C 320 RS 152-1
RSF 375/2300 M 55

Komb.-Nr. 0 400 074 965/Sales model 0 400 074 964
1- 3- 4 - 2
0-90-180-270

supersedes 6.84
company Daimler-Benz
engine OM 601
53 kW
Europa

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Note: Before starting testing, observe the important instructions on the reverse.

Port closing at prestroke **2,00-2,10** mm (from BDC)
(1,95-2,15)

Control rod travel **RW 20,0-22,0** mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	11,1+0,1	3,1-3,2	0,25 (0,3)			
375 1800 2200	5,4-5,6	0,5-0,6	0,10(0,15) 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
13-17	① min. 11,5 ② 5,4-5,6 ③ 4,4-4,6 ④ 1,5 ⑤	250 375 400** 630-730	50	⑦ 10,3-10,5 ⑧ 7,8-8,2 ⑨ - ⑩ - ⑪	2200 2500		⑫ 100 ⑬ 1800 ⑭ 1000 ⑯ Switching point	min. 20,1 10,8-11,0 11,1-11,2

C. Settings for Fuel Injection Pump with Governor Mounted

Full-load delivery ⑰		Full-load speed regulation ⑱	Variations in fuel delivery ⑲		Starting fuel delivery Idle		Difference
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	cm ³ /1000 strokes
1	2	3	4	5	6	7	8
2200	33,0-35,0 (32,0-36,0)	2500 * 7,8-8,2 mm RW	1800	34,0-35,5 (33,0-36,5)	100	min. 55	6,0 ⑳
					375	5,0-6,0 (4,5-9,0)	1,0 (1,5) ㉑
			1000	31,0-32,0 (30,0-33,0)	2500	22,0-26,0 (21,0-27,0)	2,5 See (3,0) Point ㉒ 8 a

Checking values in brackets

* ca. 2,4

less control rod travel than in Column 2

Important:

Test specifications apply to control rod stop screw with collar 6.3 mm dia. and thread M 10 x 1.

For pump versions with control rod stop screw with collar 5.3 mm dia. and thread M 8 x 1, all specified control rod travel values must be increased by 0.5 mm.

1. **** Checking the idle speed auxiliary spring setting at $n = 400$ rpm, control rod travel (4.3-4.7 mm)**
2. **Setting the idle control lever position:**
At 1000 rpm, control rod travel 0.9 - 1.0 mm.
3. **Checking the idle speed auxiliary spring shut-off**
Control lever position 50° , after change-over point (from starting curve) until 1000 rpm, max. permissible control rod travel 0.2 mm.
Control lever position 48.5° ; after change-over point (from starting curve) control rod travel must be greater than 0.2 mm.
4. **Checking the pneumatic shut-off box**
Control lever on idle stop.
At $n = 375$ rpm and $p_u = 450$ mbar (vacuum) (338 mm Hg), the control rod must travel rapidly to control rod position = 0 mm.
5. Overflow valve 1 469 990 351,
6. Port closing difference between largest/smallest value max. 1° camshaft angle.
7. **Setting the idle speed control rod travel on the pneumatic idle boost box**
When doing this, release the lock nut.
8. **Checking the pneumatic idle boost:**
With 0.4 bar vacuum, $n = 425$ rpm, control rod travel = (7.0 - 8,6 mm)
Delivery = (11.0 - 19.0 $\text{cm}^3/1000$ strokes).
9. **Leak test (vacuum test) of pneumatic idle boost box**
Apply 0.8 bar vacuum to the pneumatic idle boost box via a three-way valve and a pressure gauge. Using the three-way valve, disconnect the vacuum supply from the pneumatic idle boost box and pressure gauge.
Permissible pressure drop 30 mbar in 15 sec.
10. **Start-of-delivery sensor setting**
Start-of-delivery sensor setting and locking according to average port closing value for all cylinders 19.5 ± 0.2 (0.3°) camshaft angle after cylinder 1.

Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PE 6 P 100 A 720 RS 15 RQ 250/1100 PA 111 DR
Komb.-Nr. 0 401 846 194

supersedes 5.84
company Daimler-Benz
engine OM 355
154 kW (210 PS)

En

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,80-2,90$
 $(2,75-2,95)$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1090	12,0+0,1	10,0 - 10,2	0,3 (0,6)			
250	7,9-8,1	1,7 - 2,3	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,5-16,5	600	16,0	11,0 4,0 1300	1135-1150 1210-1240 0 - 1,0	250	6,0	100 250 385-425 = 2,0	mind. 7,0 5,9-6,1	1090 700 450	12,0-12,1 12,3-12,4 12,6-12,7

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: $1135 - 1150 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
1090	100,0 - 102,0 (98,0 - 104,0)		700 450	96,0 - 99,0 (94,0 - 101,0) 90,0 - 94,0 (88,0 - 96,0)	100	150,0-170,0 (146,0-174,0)

Checking values in brackets

①

Test Specifications Fuel Injection Pumps (1) and Governors

 WPP 001/4 MB 11,8 n
2. Edition

En

 PE 6 P 110 A 720 RS 371
Komb.-Nr. 9 400 087 319

RQV 300-1050 PA 747

 supersedes 6.85
company: Daimler-Benz
engine: OM 355 A
210 kW

Testi-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke ^{2,8-2,9} (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,5+0,1	16,1-16,3	0,4 (0,75)			
300	5,9-6,1	1,6-2,1	0,35(0,45)			

 Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max	1100	15,2-17,8	-	-	-	ca. 14	100	min. 8,6	260	1,0-1,4
ca. 68	10,5	1090-110					300	5,9-6,1	450	2,5-2,8
	4,0	1160-1190					530-590 = 2,0		800	5,4-5,7
	1300	0 - 1,0				380-440			1070	8,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1050	161,0-163,0 (159,0-165,0)	1090-1100*	500	152,0-156,0 (149,0-159,0)	100	144,0-160,0 = 12,7-13,1 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.85

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F4

f4

Test Specifications Fuel Injection Pumps and Governors

PE 6 P 120 A 320 RS 7102
Komb.-Nr. 0 402 646 822

RQ 200/1000 PA 745

supersedes 4.85
company Scania
engine DS9 03

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

5,0-5,1
(4,95-5,15) mm (from BDC)

Port closing at prestroke	Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
	rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
	1	2	3	4	2	3	6
	700	12,0+0,1	16,3 - 16,5	0,6(0,9)			3,3 ± 0,1
	225	4,8-5,0	1,5 - 1,9	0,3(0,6)			(3,0 - 3,5) **

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking n° slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
800	15,2-17,8	800	16,5	11,0	1045-1060	225	4,9	100	min. 6,3	-	-
VH = max. 46°				4,0	1185-1215			225	4,8-5,0		
				1300	0-1,0			305-	345=2,0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1045-1060 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /100 strokes
1	2	3	4	5	6	7
LDA 700	0,9 bar 163,0 - 165,0 (160,0 - 168,0)	-	LDA 1000	0,9 bar 162,0 - 170,0 (160,0 - 172,0)	100	240,0 - 290,0 = 20,0 - 21,0 mm RW
			LDA 500	0 bar 141,0 - 145,0 (139,0 - 147,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

SCA 9,0 b

- 2 -

Test at n = 500 rev/min ^{decreasing} pressure - in bar gauge pressure _{increasing}

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P.. RS 7102 + RQ.. PA 745	0,90		12,0 - 12,1
		0	11,3 - 11,4
		0,42	11,7 - 11,8
		0,38	11,5 - 11,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-J-400/116
- For sealing, see VDT-J-400/117
- Test specifications approved by Scania on 4.10.1984
- Start of fuel delivery-engine: 15° v. OT
- Firing sequence, engine : 1-5-3-6-2-4

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 - 3,1 mm.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 e 1
6. Edition

En

PES 6 A 80 D 410 RS 2085 Y RQV 300-1475 AB 533 DL
Komb.-Nr. 0 400 846 185

supersedes 10.84
company: Daimler-Benz
engine: OM 352

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,15-2,25}
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1450	8,2-8,3	4,6 - 4,7	0,2(0,35)			
300	6,9-7,1	1,3 - 1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1420	15,2-17,8	-	-	-	ca. 14	100 300	min. 8,2 6,9-7,1	250 660 1060 1475	0,8-1,1 3,4-3,8 5,3-5,5 8,3
ca.60	7,2 4,0 1700	1505-1515 1560-1590 0 - 1,0				330-450				

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1450	46,0-47,0 (44,5- 48,5)	1505-1515*	800	45,5-47,5 (44,0-49,0)	100	71,5-81,5 (68,5-84,5) = 12,9-13,3 mm RW	1450 500 800 1200	8,2-8,3 9,2-9,3 8,9-9,1 8,2-8,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85



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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 m

8. Edition

En

Testoil-ISO 4113

PES 6 A 80 C 410	RS2085X	EP/RSV	350-1300	A2B1005D	(1)	..2C..supersedes	12.84
..D..	RS2085X	EP/RSV	350-1425	A2B1001D	(2)	company:	12.84
	RS2085X	EP/RSV	350-1425	A2B1007D	(3)	engine:	12.84
	RS2085T	EP/RSV	350-1300	A2B1005D	(4)		Daimler-Benz OM 352 - Unimog (1+4) 84 PS (2) 90 PS (3) 100 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min, 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,3	0,3			
	6 15	1,2 - 2,0 9,8 - 11,0				
200	9	1,8 - 2,6				

Adjust the fuel delivery from each outlet according to the values in .

A2 C
350-1300 A2 B1005 D (1)

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	loose	350	6,9	1300	8,0+0,1
	x = 4,25						100	min. 17,5	500	9,4+0,1
ca. 48	7,0	1340-1350					350	6,8-7,0	700	9,2+0,2
⑤	4,0	1400-1430					620-680=2,0		950	8,3+0,3
	1575	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
	(1) 1300	40,0 - 41,0 (38,5-42,5)	1340-1350 *	500	39,5 - 41,5 (37,5-43,5)	100	78,0 - 88,0 (75,0-91,0) = 14,5 - 14,9 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

350-1425 A2 B1001D (2)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control								
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm							
1	2	3	4	5	6	7	8	9	10	11							
ca. 60	1425	16,0	without auxiliary spring	ca. 22	350	7,5	1400	0	1400	0							
	1500	11,5															
1560	6,8																
⑤	1530	7,5-10,5									with auxiliary spring	200	19 - 21	900	0 - 0,2	400	1,3-1,5
	1600	4,0-6,0															
	1820	0,3-1,0															
	1530	7,5-10,5															
1600	4,0-6,0																
1820	0,3-1,0																

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full load stop		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2) 1400	41,5 - 42,5 (40,0-44,0)	1455-1465	1000	37,5 - 39,5 (36,0-41,0)	-	-	-	-
			800	39,0-41,0 (37,5-42,5)				
			⑤a 500	40,5-42,5 (39,0-44,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil ISO 4113

B. Governor Settings

350-1425 A2 B1007D (3)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control								
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm							
1	2	3	4	5	6	7	8	9	10	11							
ca. 60	1425	16,0	without auxiliary spring	ca. 22	350	7,2	1400	0	1400	0							
	1500	11,4															
1560	6,6																
⑤	1520	8,0-10,9									with auxiliary spring	200	19 - 21	950	0	450	0,9-1,1
	1650	2,1-4,4															
	1800	0,3-1,5															
	1520	8,0-10,9															
1650	2,1-4,4																
1800	0,3-1,5																

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full load stop		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(3) 1400	45,5 - 46,5 (44,0-48,0)	1420-1430	1000	41,5 - 43,5 (40,0-45,0)	-	-	-	-
			800	43,0-45,0 (41,5-46,5)				
			500	40,5-42,5 (39,0-44,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

.. A 2 B 1005 D (4)

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 51	1300	16,0	without auxiliary spring			ca. 19	350	8,0	1280 800	0 0,8-1,0
	1360	10,8					200	19-21		
	1400	6,7					350	7,7-8,2		
ca. 49	1300	ca. 8,2	with auxiliary spring			ca. 19	600	2,2-4,3		
	1400	ca. 3,7					780	0-1,0		
	1520	0,3-1,0								

Testöl ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	3	4	5	6	7	8	9
1290 (4)	40,0-41,0 (38,5-40,5)	1330-1340*		800	36,5-39,5 (35,0-41,0)	100	72,5-82,5	-	-
				500	36,5-39,0 (35,0-40,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 i
4. Edition

En

PES 4 A 80 D 410 RS 2094	EP/RSV 350-1400 A5 B 740 (1)	supersedes	11.75
	350-1300 A1 B 752 D (2)	company	Daimler-Benz
	350- 900 A0 B 764 (3)	engine	OM 314 (80 PS-1) (68 PS-2) (53 PS-3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 01 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,6-6,0				
200	6	1,3-2,2				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

350-1400 A5 B740 (1)

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control			
	mm	mm rev/min	4	5	6		rev/min	mm	rev/min	mm		
2	3					8	9	10	11			
ca.55	1400	16,0	without auxiliary spring			ca.16	350	4,5	-	-		
	1450	9,4							200	19-21		
	1480	3,4							350	4,2-4,8		
ca.53	1380	ca.8,3	with auxiliary spring				450	2,3-3,3				
2a	1460	ca.3,0							600	0 - 1		
	1570	0,3 - 1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1380	56,5-58,5	1415-1425*		1450	1470: 3,0 mm RW	100	ca.8		
(increase by ± 0,5 cm ³ !)									

Checking values in brackets

* 1 mm less control rod travel than col 2

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F11

B. Governor Settings

350-1300 A 1B 752 D (2)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 73	1220	16,0	without auxiliary spring			ca. 28	350	5,3	1280	0
	1280	10,2					200	19 -21		
	1325	6,6	with auxiliary spring	350	5,0-5,6	500	0,6-0,8			
	1320	ca. 7,6		450	2,5-3,7					
	1370	ca. 3,0		600	0 - 1					
⑤	1450	0,3 - 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes							
1	2	3	4	5	6	7	8	9
1280	48,5 - 50,5	1320-1330 *	1000	47,5 - 50,5	100	ca. 8		
			700	46,5 - 49,5				
			⑥a					

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

350-900 A 0 B 764 (3)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 33	750	16,0	without auxiliary spring			ca. 18	350	5,3	-	-
	820	10,3					220	19 -21		
	870	5,1	with auxiliary spring	350	5,0-5,6					
ca. 30	730	ca. 8,2		370	2,5-4,0					
	780	ca. 2,8		420	0 - 1					
⑤	820	0,3 - 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes							
1	2	3	4	5	6	7	8	9
880	47,5-49,5	895-905 * (VH ca. 34)	-	-	100	72,5 - 82,5	-	-
			930 -	945: 2,8 mm				

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 8,7 g

En 4. Edition

Testoil-ISO 4113

PE 6 A 90 D 410 RS 2124 EP/RSV 300-1050 A1B565D (1)
 ..350-1100 A1B 672 D (6) 425-1165 A7B592D (2)
 ..A1G665 L (7) 425-1165 A1B630D (3)
 .. 700-1250 A1B665 (7) 575-1150 A1B665 (4)
 300- 750 A4B666 (5)

superseded 9.76

company: Daimler-Benz
 engine: OM 360

(1 - 140 PS) (6 - 172 PS)
 (2 - 135 PS) (7 - 175 PS)
 (3 - 140 PS)
 (4 - 170 PS)
 (5 - 112 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	6,4 - 6,9	0,4			
	6 15	2,9 - 3,8 13,8 - 15,3				
200	6	0,2 - 1,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

300-1050 A1B565D (1)

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 52	1050	16,0	without auxiliary spring	ca. 20	300	6,0	1030	0	700	0,1-0,3
	1080	12,0			200	19 - 21				
	1120	5,6			300	5,7-6,3				
⑤	1100	7,2-10,2			with auxiliary spring	400	2,6-4,3	400	0,4-0,6	
	1150	2,4-4,6				550	0 - 1			
	1250	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7 mm RW	8	9
(1) 1030	69,5-71,5	1065-1075 *	700	69,5 - 72,5	100	ca. 12	300	6,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 67	1175	12,0	without auxiliary spring			ca. 25	425	5,6	1150	0
	1185	7,0					200	19 - 21		
	1200	2,2					425	5,3-5,9		
ca. 66	1175	ca. 8,5	with auxiliary spring			ca. 25	560	0 - 1	500	0,7-0,9
	1210	ca. 3,5								
	1260	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes mm RW	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes							
1	2	3	4	5	6	7	8	9
(2) 1145	62,5 - 64,5	1180-1190*	800 500	60,0 - 63,0 58,0 - 61,0	100	ca. 12	425	5,6

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 58	1165	16,0	without auxiliary spring			ca. 25	425	6,0	1145	0
	1200	10,9					200	19 - 21		
	1230	5,0					425	5,7-6,3		
ca. 56	1165	ca. 8,5	with auxiliary spring			ca. 25	500	1,4-3,6	500	0,9-1,1
	1210	ca. 3,5					580	0 - 1,5		
	1260	0,3-1,5								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes mm RW	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes							
1	2	3	4	5	6	7	8	9
(3) 1145	67,0 - 69,0	1180-1190*	800 500	64,0 - 67,0 61,5 - 64,5	100	ca. 12	425	6,0
			1200-	1215=3,5mmRW				

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

575-1150 A1B665 (4)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 55	1150	16,0	without auxiliary spring			ca. 28	575	4,5		
	1180	11,0					200	19 - 21		
	1210	4,5					575	4,2-4,8		
ca. 54	1160	ca. 10	with auxiliary spring				610	1,8-3,1		
	1190	ca. 3,5					680	0 - 1		
	1250	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2		4	5	6	7 mm RW	8	9
(4) 1130	79,0 - 81,0	1165-1175*	-	-	100	ca. 12	575	4,5
			⑥a 1185-1195=3,5mmRW					

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

300-750 A4B666 (5)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 41	750	16,0	without auxiliary spring			ca. 19	300	7,5		
	780	10,4					200	19 - 21		
	810	3,4					300	7,2-7,8		
ca. 40	760	ca. 10	with auxiliary spring				400	1,0-2,7		
	785	ca. 4,0					480	0 - 1		
	850	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2		4	5	6	7 mm RW	8	9
(5) 730	79,5 - 81,5	755-765	-	-	100	ca. 12	300	7,5

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

350-1100 A1B672D (6) - 4 -

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control		
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
ca. 63	1100	16,0	without auxiliary spring			ca. 28	350	6,0	1080	450	0,5-0,7
	1160	10,9					200	19 - 21			
	1200	6,3					350	5,7-6,3			
ca. 60	1100	ca. 9,8	with auxiliary spring			ca. 28	450	3,0-4,3	1080	450	0,5-0,7
	1185	ca. 3,5					620	0 - 1			
	1260	0,3-1,0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes	rev/min	4	5	6	7 mm RW	8	9
1	2	3	4	5	6	7	8	9
(6) 1080	78,0 - 80,0	1125-1135 *	800 500	80,5 - 83,5 75,0 - 78,0	100	ca 12	350	6,0
			⑥a 1175-	1195 3,5 mm RW				

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

A1C665 L
700-1250 A1B665 (7)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control		
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
ca. 60	1250	16,0	without auxiliary spring			ca. 33	700	4,5			
	1280	11,0					200	19 - 21			
	1310	5,0					700	4,2-4,8			
ca. 59	1260	ca. 9,4	with auxiliary spring			ca. 33	740	1,0-2,5			
	1290	ca. 3,5					780	0 - 1			
	1340	0,3-1,0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes	rev/min	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9
(7) 1230	83,5 - 85,5 (81,5-86,5)	1265-1275 *	-	-	100	ca. 12 mm RW	700	4,5
			1290-	1300=3,5mmRW				

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps and Governors

40

1A

WPP 001/4 MB 8,7i

6. Edition

En

Testoil-ISO 4113

PE 6 A 90 D 410 RS 2124 RSV 700-1150 A 1 B 665 L
Komb.-Nr. 0 400 676 117 A 1 C 665 L

supersedes 11. 84
company Daimler-Benz
engine OM 360
125 kW (170 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,10-2,30) mm (from BDC)
2,15-2,25

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,6-10,7	8,8 - 8,9	0,3(0,45)			
700	5,6-5,8	1,8 - 2,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Control lever deflection in degrees			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11	
loose	900	0,3-1,0	-	-	-	700	5,2	-	-	
ca. 53 2a	9,6 4,0 1250	1160-1165 1184-1201 0,3-1,7				700 690-750	5,1-5,3 = 2,0 **			

** Set idle-speed auxiliary spring at 2,0 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery idle		4a Idle stop	
Test oil temp 40°C (104°F)	Note changed to)	Fuel delivery characteristics	Starting fuel delivery idle	Idle stop	rev/min	Control rod travel	rev/min	Control rod travel
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
1150	87,5 - 88,5 (85,5 - 90,5)	1160-1165*	-	-	100	15,0-125,0 (12,0-128,0) = 14,6 - 15,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PES 6 A 90 D 320/3 RS2393 | EP/RSV 300-1000 A7 B529DR
RS2464 | 325-1500 A2 B529 DR

supersedes 10.84
company: MWM
engine: TD 226-6

As from FD 823 the idle auxiliary-spring has been changed from 1 424 641 000 to ... 001. New values enclosed.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,1 - 5,5	0,4			
	6	1,6 - 2,6				
200	9	1,9 - 2,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RSV 300-1000

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.68	1000 1050 1100	16,0 8,5 2,4	without auxiliary spring			ca.28	300	5,5	-	-
⑤ ca.67	1030 1070 1120	8,0-9,0 2,0-4,0 0,3-1,0					with auxiliary spring			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
See page 3 - 4!									

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

RSV 325-1500..

MWM 6,2 c - 2 -

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 20	325	7,0	-	-
	x = 3,5						325	7,4-7,6		
ca. 58	8,0	1520-1530					450-510	= 2,0		
	4,0	1560-1590								
	1700	0,3-1,4								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	3	4	5	6	7	8	9
See page 3 - 4!		1520-1530*							

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

C: Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation rev/min	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
F 150	PS / 2500	min ⁻¹						
1250	87,0 - 89,0	1270	800	84,0 - 87,0				
B 143	PS / 2500	min ⁻¹						
1250	84,0 - 86,0	1270	800	79,5 - 82,5				
F 148	PS / 2400	min ⁻¹						
1200	86,0 - 88,0	1220	800	84,0 - 87,0				
B 141	PS / 2400	min ⁻¹						
1200	82,0 - 84,0	1220	800	79,5 - 82,5				
F 146	PS / 2300	min ⁻¹						
1150	84,0 - 86,0	1170	800	84,0 - 87,0				
B 139	PS / 2300	min ⁻¹						
1150	81,0 - 83,0	1170	800	79,5 - 82,5				
A 125	PS / 2300	min ⁻¹						
1140	80,0 - 83,0	-----	1150	74,0 - 76,0				
F 143	PS / 2200	min ⁻¹						
1100	84,0 - 86,0	1120	800	84,0 - 87,0				
B 137	PS / 2200	min ⁻¹						
1100	81,0 - 83,0	1120	800	79,5 - 82,5				
A 134	PS / 2200	min ⁻¹						
1090	80,5 - 83,5	-----	1100	74,0 - 76,0				
F 140	PS / 2100	min ⁻¹						
1050	85,0 - 87,0	1070	800	84,0 - 87,0				
B 134	PS / 2100	min ⁻¹						
1050	82,0 - 84,0	1070	800	79,5 - 82,5				
A 122	PS / 2100	min ⁻¹						
1040	80,5 - 83,5	-----	1050	76,0 - 78,0				
F 135	PS / 2000	min ⁻¹						
1000	86,0 - 88,0	1020	800	84,0 - 87,0				
B 130	PS / 2000	min ⁻¹						
1000	81,0 - 83,0	1020	800	79,5 - 82,5				
A 119	PS / 2000	min ⁻¹						
990	80,5 - 83,5	-----	1000	73,0 - 75,0				
B 123	PS / 1800	min ⁻¹						
900	82,0 - 84,0	910	750	78,5 - 81,5				
A 112	PS / 1800	min ⁻¹						
890	89,5 - 92,5	-----	900	75,0 - 77,0				
B 110	PS / 1500	min ⁻¹						
750	86,0 - 88,0	760	650	74,0 - 77,0				

- A 100 PS See page 4

Checking values in brackets

* 1 mm less control rod travel than col 2

A 100	BHP at 1500 min/1		
740	87.5 - 90.5	----- 750	86.0 - 88.0

The nameplate described on MWM 1.5 a has recently been expanded - in columns n = rotational speed and Q = full-load fuel delivery - to include two rotational speeds and two fuel deliveries, to enable more exact adjustment in the case of regulators with torque control.

Accordingly - in deviation from VDT-WPP 001/4, 1st addendum, Adjustment of the Regulator and the Pump - the following points will apply:

- (1) Adjustment of the control spring: remains.
- (2) Adjustment of the full-load fuel delivery: in accordance with nameplate, n = (1st rotational speed) and Q = (1st fuel delivery), or according to Sect. C, Columns 1-2.
- (3) Adjustment of the torque control: is adjusted until the control-rod travel is changed as indicated in (2), or according to the new nameplate, until the 2nd fuel delivery is obtained at the 2nd rotational speed; or accordance with Section C, Columns 4-5.
- (6) Start of speed regulation: is readjusted according to the nameplate n = (1st rotational speed + 20 min/1) or Column 3.
However, for A-power output: readjust until the fuel delivery as shown in Columns 4-5 has been attained.

New pumps from the warehouse in Stuttgart do not have the spring retainer!
For that reason, use the old spring retainers, or order new ones from MWM
in accordance with the old nameplate!

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 r 4

4. Edition

En

PES 6 A 90 D 410 RS 2293 RSV 350-750 AOB 741 L
Komb.-Nr. 0 400 876 261 AOC 741 L

supersedes 11.82
company Daimler-Benz
engine: OM 352 A
62,5 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,9+0,1	6,3 - 6,5	0,3(0,45)			
350	7,9-8,1	1,9 - 2,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3 - 1,0	-	-	-	ca. 19	350	8,0	-	-
	x = 20						350	7,9-8,1		
							370-430	2,0		
ca. 31 ⑤	9,9 4,0 820	750-755 788-801 0,3-1,7						**		

** Set idle-speed auxiliary spring at 2 mm control-rod travel!
The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9
700	63,0-65,0 (61,0-67,0)	750 *	-	-	100	78,0-88,0 (75,0-91,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 q 5

4. Edition

En

PES 6 A 90 D 410 RS 2293 RSV 350-1400 A 0 B 788 DL

Komb.-Nr. 0 400 876 258

H = 22,5 mm

superseded by 6.83

company Daimler-Benz

engine OM 352 A

124 kW (168 PS)

Unimog

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$ mm (from BDC)
 $(2,10-2,30)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
1400	11,3+0,1	7,4 - 7,5	0,3(0,45)			
350	6,7-6,9	0,5 - 1,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
			4	5	6		rev/min 8	Control rod travel mm 9		
Loose	800	0,3-1,0	-	-	-	19-21	350	6,3	1400	11,3-11,4
	x = 5,0									
67-70	10,3	1440-1450					100	min. 19,0		
	4,0	1500-1530					350	6,7-6,9		
2a	1600	0,3-1,7					530-590	0 = 2,0		
							700	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1400	0,7 bar 74,0-75,0 (72,0-77,0)	1440-1450*	LDA 500	0,7 bar 62,0-64,0 (60,0-66,0)	100	78,0-88,0 - (75,0-91,0) = 14,8 - 15,2 mm R ₇		
			LDA 500	0 bar 54,0-56,0 (52,0-58,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure
 increasing

MB 5,7 q 5

-2-

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel: diminution difference mm (1)
PES6A.. RS 2293 with.. AOB 788 DL	0	0,38 0,70	10,8 - 10,9 11,1 - 11,2 11,5 - 11,6

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testing the hydraulic start-locking device

Locking at 0,4 - 0,5 bar

Unlocking at 0,15 - 0,25 bar

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 1 d

4. Edition

En

Testoil-ISO 4113

PE 6 A 95 D 410 LS 2450
PE 8 A 95 D 410 LS 2451
PE 10 A 95D610/4 LS 2452
PE 12 A 95 D 610 LS 2453

RQ..929,930,984D, 986D,987D
RQV..898,931,973,974,975
976,983D,988D, 990D,
996,999, 1006D, 1009, 1014,
1016,1020,1021,1026D
EP/RSV..1002D, 1084

supersedes 1.83
company K H D
engine: F 6 L 413F/ FW
8
10
12

See page 2
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	①	mm 11
page	3-8										

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b		Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	④a	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
page	9 - 22								

Checking values in brackets

* 1 mm less control rod travel than col. 2
4.85

INSTRUCTIONS

-2-

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- 12-cyl. with RQ, RQV	20-22
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2. Cam sequence and angular cam spacing

6 cyl. 1 - 6 - 5 - 4 - 3 - 2 - 1

0 - 75 - 120 - 195 - 240 - 315 - 360°

8 cyl. 1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 - 1

0 - 45 - 90 - 135 - 180 - 225 - 270 - 315 - 360°

10 cyl. 1 - 10 - 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2 - 1

0-27-72-99-144-171-216-243-288-315-160°

12 cyl. 1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12 - 1

0-15-60-75-120-135-180-195-240-255-300-315-360°

3. Instructions for testing

to Section B:

Torque control dimension a = .. -section C, column 8 as required for trials no. for pre-adjustment. Final dimension to be set according to fuel-delivery characteristics in Section C, column 4-5. Further instructions for trials no. will follow on a separate information sheet.

to Section C:

If supplied, the control-rod stop with RQV governors must be set with a torque control of $n=600/\text{min}$.

B. Governor Settings

RQ..

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

300 1325 AB 929L, 930L

650	15,6-16,0	650	16,0	1350	15,6-16,0	580	0	200	6,4-8,1	-	-
				1400	5,0-12,2			300	4,4-6,5		
				1440	0 - 7,0			400	1,2-3,5		
				1500	0 - 1,5			480	0		

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation At 1 mm less control rod travel

300/1250 AB 929L

650	15,6-16,0	650	16,0	1270	15,6-16,0	580	0	200	6,3-8,1	-	-
				1300	10,0-14,8			300	4,2-6,2		
				1350	0 - 8,0			400	0,8-3,2		
				1420	0 - 1,5			480	0		

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation At 1 mm less control rod travel

300/1250 AB984DL, 987DL

650	15,6-16,4	650	16,0	1290	13,0-15,4	570	0	200	6,5-8,1	750	15,8-16,0
				1320	6,0-13,7			350	2,8-5,0	900	15,3-15,6
				1340	0 - 10			410	0,6-3,2		
				1420	0			470	0		

Torque-control travel on flyweight assembly dimension a = 0,3 mm Speed regulation At 1 mm less control rod travel

300/1250 AB986DL

650	15,6-16,4	650	16,0	1300	11,0-15,0	660	0	200	6,1-8,2	800	15,6-15,9
				1320	6,4-12,5			300	4,0-6,0	950	15,0-15,4
				1340	0 - 9,6			410	0 - 2,4		
				1420	0			560	0		

Torque-control travel on flyweight assembly dimension a = 0,3 mm Speed regulation At 1 mm less control rod travel

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Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

B. Setting values for the governor

RQV

KHD 1 d

- 4 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

300-1325 AB 898L

ca. 68	1350	15,0-18,0	-	-	-	ca. 12	200	7,5-9,0	250	0,3-1,2		
	1430	8,3-13,0					300	4,9-7,1			800	3,6-4,1
	1520	0 - 6,6					500	2,7-4,2				
	1600	0					890	0			-	-

300-1250 AB 898L

ca. 68	1300	14,5-17,6	-	-	-	ca. 12	200	7,3-9,0	250	0,3-1,3		
	1380	6,8-12,4					300	4,9-7,1			800	3,4-4,2
	1450	0 - 7,2					500	2,3-4,8				
	1540	0					840	0			-	-

300-1150 AB 898L

ca. 68	1160	15,0-18,0	-	-	-	ca. 12	200	7,3-9,0	250	0,3-1,3		
	1220	8,2-13,6					450	2,7-4,1			1160	8,3
	1290	0 - 7,3					650	0,7-1,8				
	1370	0					800	0			-	-

300-1075 AB 898L

ca. 68	1160	15,0-18,0	-	-	-	ca. 12	200	7,5-9,0	250	0,3-1,2		
	1240	8,0-13,2					300	5,1-7,0			700	4,0-4,5
	1320	0 - 7,2					500	1,1-2,4				
	1400	0					710	0			-	-

300/725-1075 AB 931L

ca. 68	1075	15,0-17,3	ca. 48	700	11,6-16,5	ca. 12	140	6,8-8,2	200	0,2-0,8		
	1100	11,0-15,4		800	7,0-11,4		300	4,7-6,1			400	1,9-2,1
	1160	0 - 7,4		900	1,7- 4,5		450	3,6-4,0				
	1220	0		950	0		700	1,7-3,9			900	4,6-5,2
-	-	-	-	830	0	1075	8,5	-	-			

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

300-800/100 AB 973DL

torque-control travel Maß a = 0,7 mm

ca. 50	1180	15,0-18,4	ca. 27	600	11,8-14,7	ca. 13	150	8,4-11,5	200	0,5-1,2	
	1250	6,8-12,0		700	7,6-10,3		250	5,7-8,8		600	3,2-3,6
	1300	0 - 7,6		840	0 - 2,4		420	0 - 3		1050	7,4-7,6
	1380	0		880	0		530	0		1170	8,3
									650	0	
									400	0,7	

300-1325 AB 974 L

ca. 66	1325	15,0-17,8	-	-	-	ca. 10	150	6,6-8,0	1325	8,3
	1400	8,3-12,9					300	4,6-6,1		
	1480	0 - 6,8					450	2,7-3,8		
	1560	0					600	1,8-3,2		
							860	0		

300-985/1325 AB 975L

ca. 68	1350	12,0-16,0	ca. 61	900	12,4-15,3	ca. 12	100	6,8-8,0	460	2,0-2,5	
	1420	4,4-11,0		1000	5,4-8,1		250	5,6-7,2		1300	8,5
	1460	0 - 8,0		1100	0,5-1,0		400	3,3-4,8			
	1560	0		1300	0,5-1,0		600	0,8-2,2			
							710	0			

RQV 300-1325 AB976L

ca. 68	1350	15,2-17,8	-	-		ca. 12	100	min. 8	300	1,2-1,3	
	1700	0 - 1					300	5,4-5,6		600	2,4-4,6
ca. 59	1375	9,4-10,4						400	1,5-3,7	1350	8,3
	1475	2,7-4,6	500	0 - 1							
									-	-	

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B. Setting values for the governor RQV

KHD 1 d

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque-control travel rev/min	Torque-control travel mm
1	2	3	4	5	6	7	8	9	10	11

300-1250 AB983DL, 990DL

torque-control travel Maß a = 0,5 mm

ca. 66	1290	15,0-18,0	-	-	-	ca. 12	100	7,6-8,6	1290	8,3
	1370	7,5-12,7					300	5,2-6,6	1200	0
	1440	0 - 7,7					600	2,0-3,2		
	1530	0					850	0		

300-1075 AB988DL

torque-control travel Maß a = 0,5 mm

ca. 68	1100	15,0-18,0	-	-	-	ca. 12	100	6,2-8,0	1100	8,3		
	1190	4,1-10,4					300	4,4-6,2	1075	0		
ca. 66	1075	15,0-18,0	-	-	-	ca. 12	500	1,8-3,3			500	0,5-0,6
	1140	8,0-13,0					720	0				
	1200	0 - 8										
	1280	0										

RQV 300-1075 AB988DL

torque-control travel Maß a = 0,5 mm

ca. 68	1160	15,0-18,0	-	-	-	ca. 12	200	7,5-9,0	250	0,3-1,2
	1240	8,0-13,2					300	5,1-7,0	700	4,0-4,5
	1320	0 - 7,2					500	1,1-2,4	1080	0
	1400	0					710	0		

RQV 1150 AB999L (V13274)

ca. 48	1100	14,6-20,5	-	-	-	-	-	-	1150	5,4
	1150	8,3-13,0							-	-
	1200	0 - 4,5								

RQV 300-1000 AB1006DL (V13121D)

torque-control travel Maß a = 0,5 mm

ca. 68	1100	14,0-17,6	-	-	-	ca. 12	200	7,5-8,9	250	0,3-1,1
	1180	6,2-12,0					300	4,5-7,0	600	3,8-4,4
	1250	0 - 6					450	1,0-2,3	1080	8,2
							650	0	1000	0
				600	0,5-0,6					

B. Setting values for the governor RQV

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

RQV 300/525-750 AB1009L (V13157)

ca. 68	760	15,0-18,4	ca. 52	525	14,0-20,0	ca. 12	175	7,1-8,2	250	0,3-1,2		
	800	4,2-11,0		600	7,9-12,2		300	4,0-6,3			400	1,9-2,1
	815	0 - 8,0		650	3,0-6,2		400	3,6-4,0			600	3,7-4,5
	850	0		700	0		600	0			760	8,3

RQV 300-800/1325 AB1014L

ca. 46	1330	18,0-21,6	ca. 30	600	11,9-14,3	ca. 10	100	9,4-12,2	150	0,8-1,4		
	1420	9,2-14,8		720	6,6-9,0		300	4,1-7,9			700	4,0-4,4
	1500	0 - 8		840	0 - 2,3		400	0 - 3			1020-	7,4-7,6
	1590	0		880	0		510	0			1300	7,8
											1330	

RQV 300/800-1150 AB1016L (V12264), 1021 (V13155)

ca. 66	1160	15,0-18,4	ca. 48	760	11,2-16,4	ca. 12	200	6,1-7,7	250	0,5-1,2		
	1200	8,4-13,8		850	7,6-11,8		450	3,6-4,0			400-	1,9-2,1
	1250	0 - 7,6		950	2,8-5,6		650	3,3-4,0			600	8,2
	1310	0		1030	0		900	0			1160	

RQV 300/650-900 AB1020L (V12263)

ca. 66	910	15,0-18,4	ca. 48	610	11,6-16,5	ca. 12	200	6,8-8,2	250	0,3-1,0		
	980	0 - 7,5		700	6,0-9,8		400	3,6-4,6			450-	1,9-2,1
	1020	0		790	0 - 2,0		600	1,8-4,0			500	8,3
				810	0		720	0			910	

RQV 300-1250 AB1026DL

torque-control travel Maß a = 0,5 mm

ca. 68	1300	14,5-17,6	-	-	-	ca. 12	200	7,3-9,0	250	0,3-1,3		
	1380	6,8-12,4					300	4,9-7,1			800	3,8-4,2
	1450	0 - 7,2					500	2,3-4,8			1290	8,2
	1540	0					840	0				
						500	0,5-0,6					

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

300-1325 A8 B 1084L

ca. 69	1325	16,0	without auxiliary spring			ca. 23	300	6,0	1300	0		
	1400	7,7					100	19,0-21,0				
	1450	1,0					300	5,7-6,3			350	1,2-1,8
	1370	10,4-12,3					450	0,8-2,9				
	1430	2,8-6,0					600	0 - 1,0				
	1550	0,3-1,0										

300-1000 A7 B1002DL
A7C

ca. 72	1000	16,0	without auxiliary spring			ca. 23	300	6,0	980	0		
	1030	12,6					100	19 - 21			400	0,8-1,0
	1070	5,4					300	5,7-6,3				
	1050	7,0-10,2					400	3,0-4,4				
	1100	2,0-4,4					550	0 - 1				
	1200	0,3-1,0										

300-1325 A8 B1002DL
A8C

ca. 69	1325	16,0	without auxiliary spring			ca. 25	300	6,0	1300	0		
	1380	10,2					150	19 - 21			450	0,8-1,0
	1420	5,4					300	5,7-6,3				
	1330	ca. 10,5					500	1,7-3,8				
	1370	ca. 9,5					700	0 - 1				
	1520	0,3-1,0										

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C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop	RQV RQ	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7

F 6 L 413 F - 141kW/192PS / 2650/min

1325	91,5-93,5	RQ: 600	1000	88,5-91,5	100	119-129
		RQV:1340	800	87,5-90,5		

F 8 L 413 F - 188kW/192 PS / 2650/min

1324	91,5-93,5	RQ: 600	1000	88,5-91,5	100	119-129
		RQV:1340	800	87,5-90,5		

F 10 L 413 F - 236kW/320PS / 2650/min

1325	91,5-93,5	RQ: 600	1000	88,5-91,5	100	119-129
		RQV:1340	800	87,5-90,5		

F 12 L 413 F - 284kW/384PS / 2650/min

1325	91,5-93,5	RQ: 600	1000	88,5-91,5	100	119-129
		RQV:1340	800	87,5-90,5		

Caution: These changed values apply to governors without torque control

C. Settings for Fuel Injection Pump with Fitted Governor**Testoil-ISO 4113**

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes
1	2	3	4	5	6	7

192 PS / 2650 min - RQ 300/1325 AB 929 L

1325 91,5-93,5 600 400 max. 84,5 100 119-129

192 PS / 2500 min - RQ 300/1250 AB 987 DL

1250 91,5-93,5 600 700 92,5-94,5 a = 0,2 mm
400 82,5-88,5 100 119-129

186 PS / 2500 min - RQ 300/1250 AB 929 L

1250 94,5-96,5 600 400 max. 84,5 100 119-129

176 PS / 2500 min - RQ 300/1250 ABV 12946D

1250 85,5-87,5 600 1000 83,5-86,5 a = 0,3 mm
700 86,5-89,5 100 119-129

168 PS / 2500 min - RQ 300/1250 ABV 12946 D

1250 75,5-77,5 600 1000 73,5-76,5 a = 0,3 mm
700 71,5-74,5 100 119-129

176 PS / 2300 min - RQ 300/1150 ABV 12242 D

1150 83,5-85,5 600 1000 81,5-84,5 a = 0,35 mm
700 85,5-88,5 100 119-129

160 PS / 2150 min - RQ 300/1075 ABV 12243 D

1075 82,5-84,5 600 1000 80,5-83,5 a = 0,35 mm
700 83,5-86,5 100 119-129

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation		Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	Control-rod stop	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes
1	2	RQV	3	4	5	6	7

- | | | | | | | | |
|-----|-------------------------------|----------------|-------------------------------|------------------------|--|---------|-----------------------------------|
| 1. | <u>141kW/192PS / 2650/min</u> | - RQV | 300-1325 AB974L, | 300-950/1325 AB975L | | | |
| | 1325 91,5-93,5 | 1365-1375* | 400 max. 84,5 | 100 | | 119-129 | |
| 2. | <u>141kW/192PS / 2500/min</u> | - RQV | 300-1250 AB13392D, | 300-800/1250 ABV13776D | | | |
| | 1250 91,5-93,5 | 1290-1300*1000 | 91,0-94,0 | 100 | | 119-129 | a = 0,5 mm
770=4,5
(13776D) |
| | | 700 | 91,5-94,5 | | | | |
| 3. | <u>137kW/186PS / 2500/min</u> | - RQV | 300-1250 ABV12248 | | | | |
| | 1250 90,5-92,5 | 1290-1300* | 400 max. 84,5 | 100 | | 119-129 | |
| 4. | <u>130kW/176PS / 2500/min</u> | - RQV | 300-1250 AB983DL (V13122D) | a = 0,5 mm | | | |
| | 1250 85,5-87,5 | 1290-1300*1000 | 83,5-86,5 | 100 | | 119-129 | |
| | | 400 | 78,5-82,5 | | | | |
| 5. | <u>107kW/145PS / 2400/min</u> | - RQV | 300-1200 ABV 12259D | | | | |
| | 1250 71,5-73,5 | 1240-1250*1000 | 68,0-71,0 | 100 | | 119-129 | |
| | | 700 | 67,0-70,0 | | | | |
| 6. | <u>124kW/168PS / 2300/min</u> | - RQV | 300/800-1150 AB1021L (V13155) | | | | |
| | 1150 84,5-86,5 | 1190-1200* | | 100 | | 119-129 | |
| 7. | <u>124kW/168PS / 2300/min</u> | - RQV | 300-1150 AB999L (V132274) | | | | |
| | 1150 85,5-87,5 | 1190-1200* | | 100 | | 119-129 | |
| | | | | 1196 | | 17-20 | |
| 8. | <u>101kW/137PS / 1800/min</u> | - RQV | 300-900 ABV13156 | | | | |
| | 900 79,5-81,5 | 940-950* | 400 max. 82,5 | 100 | | 119-129 | |
| 9. | <u>101kW/137PS / 1800/min</u> | - RQV | 900 ABV 13273 | | | | |
| | 900 80,5-82,5 | 910 | 936 17-20 | 100 | | 119-129 | |
| 10. | <u>90kW/116PS / 1500/min</u> | - RQV | 300/525-750 AB1009L (V13157) | | | | |
| | 750 78,5-80,5 | 790-800* | 400 max.76,5 | 100 | | 119-129 | |
| | | | | | | | |

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C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop	RQV RQ	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes
1	2	3		4	5	6	7

1. 141kW/192PS / 2650/min -EP/RSV 300-1325 A 8 B 1084 L
 1325 91,5-93,5 1365-1375* 400 max.82,5 100 119-129

2. 141kW/192PS / 2650/min -EP/RSV 300-1325 A 8 B 1002 DL
 1325 91,5-93,5 1365-1375* 400 max.82,5 100 119-129

4.

5.

F 6 L 413 FW

6.1 121kW/165PS / 2500/min - RQV 300-1250 ABV 13925 D a = 0,5 mm

2. 108kW/147PS / 2500/min

1. 1250 79,5-81,5 1290-1300* 800 78,0-81,0 100 119-129
 2. 1250 74,5-76,5 1290-1300* 800 71,0-74,0 100 119-129

7.1. 115kW/156PS / 2300/min - RQV 300-1150 ABV 13926 D a = 0,5 mm

2. 96kW/131PS / 2300/min

1. 1150 78,5-80,5 1190-1200* 800 78,0-81,0 100 119-129
 2. 1150 68,5-70,5 1190-1200* 800 68,0-71,0 100 119-129

8.1. 101kW/137PS / 2150/min - RQV 300-1075 ABV 13927 D a = 0,5 mm

2. 91kW/124PS / 2150/min

1. 1075 73,5-75,5 1115-1125* 800 74,0-77,0 100 119-129
 2. 1075 67,5-69,5 1115-1125* 800 68,0-71,0 100 119-129

9.

10.

En

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop	Fuel delivery characteristics	Starting fuel delivery		
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes
1	2	3	4	5	6	7

1. 188kW/256PS / 2650/min - RQ 300/1325 AB 929 L (V 11708) a = 0,2 mm
 1325 91,5-93,5 600 400 max. 84,5 100 119-129

2. 188kW/256PS / 2500/min - RQ 300/1250 AB 987 DL (V 13391 D) a = 0,2 mm
 1250 91,5-93,5 600 700 90,5-93,5 100 119-129
 400 82,5-88,5

3. 183kW/248PS / 2500/min - RQ 300/1250 AB 929 L (V 12241)
 1250 91,5-93,5 600 400 max. 84,5 100 119-129

4. 173kW/235PS / 2500/min - RQ 300/1250 ABV 12946 D a = 0,3 mm
 1250 85,5-87,5 600 700 83,5-86,5 100 119-129
 400 max. 84,5

5. 173kW/235PS / 2300/min - RQ 300/1150 ABV 12242 D a = 0,35 mm
 1150 87,5-89,5 600 1000 88,0-91,0 100 119-129
 700 88,0-91,0
 400 max. 84,5

6. 157kW/213PS / 2150/min - RQ 300/1075 ABV 12243 D a = 0,3 mm
 1075 82,5-84,5 600 1000 81,5-84,5 100 119-129
 700 84,5-87,5
 400 max. 84,5

- 7.

- 8.

- 9.

- En 10.

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop	RQV RQ	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes
1	2	3		4	5	6	7
1. <u>188kW/256PS / 2650/min</u>			- RQV 300-1325	AB 974 L (12247), AB 1014 L (13605),	976 L (12630) 13629		
1325	91,5-93,5	1365-1375*	400	max.84,5	100	119-129	1014 770=4,5mmRW
2. <u>188kW 256PS / 2500/min</u>			- RQV 300-1250	AB 990 DL (V 13392 D),	14020 D		
1250	91,5-93,5	1290-1300*	1000	91,0-94,0	100	119-129	a = 0,5 mm
			700	91,5-94,5	100	119-129	
3. <u>184 kW/248PS / 2500/min</u>			- RQV 300-1250	AB 974 L (V 12248)			
1250	90,5-92,5	1290-1300*	400	max.84,5	100	119-129	
4. <u>173kW/235PS / 2500/min.</u>			- RQV 300-1250	AV 983 DL (V 13122 D)			a = 0,5 mm
1150	85,5-86,5	1290-1300*	1000	83,5-86,5	100	119-129	
			700	86,5-89,5			
5. <u>173 kW/235PS / 2300/min</u>			- RQV 300-1150	ABV 13777 D			a = 0,5 mm
1150	84,5-86,5	1190-1200*	1000	82,5-85,5	100	119-129	
			700	86,5-89,5			
6. <u>165kW/224PS / 2300/min</u>			- RQV 300/800-1150	AB 1021 L (13155)			
1150	84,5-86,5	1190-1200*	400	max.84,5	100	119-129	
7. <u>165kW/225PS / 2300/min</u>			- RQV 1150	AB 999 L (V 13274)			
1150	85,5-87,5	1160			100	119-129	
					1196	17-20	
8. <u>165kW/225PS / 2200/min</u>			- RQV 300-800/1100	AB 973 DL (V 13230 D)			a = 0,7 mm
1100	85,5-87,5	1140-1150*	1000	84,0-87,0	100	119-129	770=4,5 mm RW
			700	90,0-93,0			
9. <u>132kW/180PS / 2150/min</u>			- RQB 300-1075	ABV 13944 D			a = 1,2
1075	71,5-73,5	1115-1125*	1050	70,0-73,0	100	119-129	
			800	83,0-86,0			
10. <u>134kW/182PS / 1800/min</u>			- RQV 300/650-900	ABV 13156			
900	79,5-81,5	910	400	max.83,5	100	119-129	

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation	RQV	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	Control-rod stop	RQ	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes
1	2	3		4	5	6	7

11. 134kW/182PS / 1800/min - RQV 900 ABV 13273
 900 80,5-82,5 910 100 119-129
 936 17-20

12. 114kW/155PS / 1500/min - RQV 300/525-750 AB 1009 L (V 13157)
 750 78,5-80,5 760 400 max. 82,5 100 119-129

13. 114kW/155PS / 1500/min - RQV 750 ABV 12507
 750 78,5-80,5 760 100 119-129

F 8 L 413 FW

16. 1. 162kW/220PS / 2500/min - RQV 300-1250 ABV 13925 D a = 0,5 mm
 2. 144kW/196PS / 2500/min
 1. 1250 79,5-81,5 1290-1300* 800 78,0-81,0 100 119-129
 2. 1250 74,5-76,5 1290-1300* 800 71,0-74,0 100 119-129

17. 1. 153kW/208PS / 2300/min - RQV 300-1150 ABV 13926 D a = 0,5 mm
 2. 129kW/175PS / 2300/min
 1. 1150 78,5-80,5 1190-1200* 800 78,0-81,0 100 119-129
 2. 1150 68,5-70,5 1190-1200* 800 68,0-71,0 100 119-129

18. 1. 135kW/184PS / 2150/min - RQV 300-1075 ABV 13927 D a = 0,5 mm
 2. 121kW/164PS / 2150/min
 1. 1075 73,5-75,5 1115-1125* 800 74,0-77,0 100 119-129
 2. 1075 67,5-69,5 1115-1200* 800 68,0-71,0 100 119-129

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C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop	Fuel delivery characteristics	Starting fuel delivery		
rev/min	cm ³ /1000 strokes	ROV RO	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes
1	2	3	4	5	6	7

1. 188kW/256PS / 2650/min - EP/RSV 300-1325 A 8 B 1084 L
 1325 91,5-93,5 1365-1375* 400 max. 84,5 100 119-129

2. 188kW/256PS / 2500/min -EP/RSV 300-1325 A 8 B 1002 DL
 1325 91,5-93,5 1365-1375* 400 max. 84,5 100 119-129

3. 147kW/200PS / 1900/min - EP/RSV 300-1000 A 7 B 1002 DL
 A 7 C 1002 DL
 950 79,5-81,5 990-1000* 700 80,5-83,5 100 119-129
 400 max. 84,5

4.

5.

6.

7.

8.

9.

10.

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C: Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery		Control-rod stop	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
Test oil temp 40°C (104°F)	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

1. 236kW/320PS / 2650/min - RQ 300/1325 (V11709)

1325 91,5-93,5 600 400 max.84,5 100 119-129

2. 236kW/320PS / 2500/min - RQ 300/1250 AB984DL

a = 0,2 mm

1250 91,5-93,5 600 1000 91,0-94,0 100 120-130
700 91,5-94,5

3. 228kW/310PS / 2500/min - RQ 300/1250 ABV12244

1250 89,5-91,5 600 400 max.84,5 100 119-129

4. 217kW/295PS / 2500/min - RQ 300/1250 AB986DL (V13159D)

a = 0,3 mm

1250 86,5-88,5 600 1000 84,5-87,5 100 119-129
700 87,5-90,5

5. 216kW/293PS / 2300/min - RQ 300/1150 ABV12245D

a = 0,35 mm

1150 84,5-86,5 600 1000 82,5-85,5 100 119-129
700 86,5-89,5

6. 197kW/267PS / 2150/min - RQ 300/1075 ABV12246D

a = 0,35 mm

1075 83,5-85,5 600 1000 81,5-84,5 100 119-129
700 84,5-87,5

7.

8.

9.

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

C: Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
1. <u>236kW/320PS / 2650/min</u> - RQV 300-1325 AB 898L (V12249) 300-800(1325 ABV12271)								
1325	91,5-93,5	1365-1375*	400	max. 84,5	100	119-129		
2. <u>228kW/310PS / 2550/min</u> - RQV 300-1275 ABV13664D								
1275	90,5-92,5	1315-1325*	1000	90,5-92,5	100	119-129		a = 0,5 mm
			700	91,0-94,0				
3. <u>236kW/320PS / 2500/min</u> - RQV 300-1250 AB1026DL								
1250	91,5-93,5	1290-1300*	1000	91,0-94,0	100	119-129		a = 0,5 mm
			700	90,0-93,0				
4. <u>228kW/310PS / 2500/min</u> - RQV 300-1250 AB898L (V11962)								
1250	90,5-92,5	1290-1300*	400	max. 84,5	100	119-129		
5. <u>217kW/295PS / 2500/min</u> - RQV 300-1250 ABV13118D								
1250	86,5-88,5	1290-1300*	1000	84,5-87,5	100	119-129		a = 0,5 mm
			700	87,5-90,5				
6. <u>193kW/262PS / 2500/min</u> - RQV 300/850-1250 ABV12294								
1250	79,5-81,5	1290-1300*	400	max. 82,5	100	119-129		
7. <u>215kW/294PS / 2399/min</u> - RQV 300-1150 AB988DL (V13119D)								
1150	84,5-86,5	1190-1200*			100	119-129		a = 0,5 mm
			700	83,0-86,0				
			400	75,0-79,0				
8. <u>216kW/293 / 2300/min</u> - RQV 300/800-1150 AB 1016L (V12264)								
1150	84,5-86,5	1190-1200*	400	max. 82,5	100	119-129		
9. <u>206kW/280PS / 2300/min</u> - RQV 300-1150 AB898L								
1150	79,5-81,5	1190-1200*	400	max. 82,5	100	119-129		
10. <u>197kW/267PS / 2150/min</u> - RQV 300-1075 AB 988DL (V13120D)								
1075	83,5-85,5	1115-1125*	1000	81,5-84,5	100	119-129		a = 0,5 mm
			700	84,5-87,5				
			400	max. 82,5				

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C: Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
11. <u>197kW/267PS / 2150/min</u> - RQV 300/750-1075 AB931L (V12575)								
1075	83,5-85,5	1115-1125*	400	max. 82,5	100	119-129		
12. <u>184kW/250PS / 2000/min</u> - RQV 300-1000 AB1006DL (V13121D) a = 0,5 mm								
1000	80,5-82,5	1040-1050*	700	83,5-86,5	100	119-129		
13. <u>184kW/250PS / 2000/min</u> - RQV 300-1000 ABV13550								
1000	80,5-82,5	1040-1050*	400	max. 82,5	100	119-129		
14. <u>168kW/228PS / 1800/min</u> - RQV 300/650-900 AB1020L (V12263)								
900	80,5-82,5	940-950*	400	max. 82,5	100	119-129		
15. <u>142kW/193PS / 1800/min</u> - RQV 300/525-750 AB998L (V12262)								
750	78,5-80,5	790-800*	400	max. 82,5	100	119-129		
F 10 L 413 FW								
16.1. <u>202kW/275PS / 2500/min</u> - RQV 300-1250 ABV13928D a = 0,5 mm								
2. <u>180kW/245PS / 2500/min</u>								
1.	1250	79,5-81,5	1290-1300*	800	78,0-81,0	100	119-129	
2.	1250	74,5-76,5	1290-1300*	800	71,0-74,0	100	119-129	
17.1. <u>192kW/261PS / 2300/min</u> - RQV 300-1150 ABV13929D a = 0,5 mm								
2. <u>161kW/219PS / 2300/min</u>								
1.	1150	78,5-80,5	1190-1200*	800	78,0-81,0	100	119-129	
2.	1150	68,5-70,5	1190-1200*	800	68,0-71,0	100	119-129	
18.1 <u>168kW/228PS / 2150/min</u> - RQV 300-1075 ABV13930D a = 0,5 mm								
<u>161kW/219PS / 2150/min</u>								
1.	1075	73,5-75,5	1115-1125*	800	74,0-77,0	100	119-129	
2.	1075	67,5-69,5	1115-1125*	800	67,0-70,0	100	119-129	

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

engine power Full-load delivery Test oil temp 40°C (104°F)		Control-rod stop	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

1. 283kW/384PS / 2650/min - RQ 300/1325 AB930L (V11709)
 1325 91,5-93,5 600 400 max 84,5 100 119-129

2. 283kW/384PS / 2500/min - RQ 300/1250 AB984DL (V13407D) a = 0,2 mm
 1250 91,5-93,5 600 1000 91,0-94,0 100 119-129
 700 91,5-94,5
 400 82,5-88,5

3. 274kW/372PS / 2500/min - RQ 300/1250 AB930L (V12244)
 1250 89,5-91,5 600 400 max. 84,5 100 119-129

4. 260kW/353PS / 2500/min - RQ 300/1250 AB986DL (V13159D) a = 0,3 mm
 1250 86,5-88,5 600 1000 84,5-87,5 100 119-129
 700 87,5-90,5
 400 max. 82,5

5. 259kW/352PS / 2300/min - RQ 300/1150 ABV 12245D a = 0,35 mm
 1150 84,5-86,5 600 1000 82,5-85,5 100 119-129
 700 86,5-89,5
 400 max. 82,5

6. 236kW/320PS / 2150/min - RQ 300/1075 ABV12246D a = 0,35 mm
 1075 83,5-85,5 600 1000 81,5-84,5 100 119-129
 700 84,5-87,5
 400 max. 82,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
1. <u>283kW/384PS</u> / <u>2650/min</u> - RQV 300-1325 AB898L (V12249)								
1325	91,5-93,5	1365-1375*	400	max.84,5	100	119-129		
2. <u>283kW/384PS</u> / <u>2500/min</u> - RQV 300-1250 AB1026DL (V13408D) a = 0,5 mm								
1250	91,5-93,5	1290-1300*1000	700	91,0-94,0	100	119-129		
				91,5-94,5				
3. <u>274kW/372PS</u> / <u>2500/min</u> - RQV 300-1250 AB898L								
1250	89,5-91,5	1290-1300*	400	max.84,5	100	119-129		
4. <u>260kW/353PS</u> / <u>2500/min</u> - RQV 300-1250 ABV 13118D a = 0,5 mm								
1250	86,5-88,5	1290-1300*1000	700	84,5-87,5	100	119-129		
				87,5-90,5				
			400	max. 82,5				
5.1 <u>246kW/335PS</u> / <u>2500/min</u> - RQV 300-1250 ABV 13287D a = 0,55 mm								
2. <u>147kW/200PS</u> / <u>2500/min</u>								
1. 1250	82,5-84,5	1290-1300*1000	700	80,5-83,5	100	119-129		
				84,0-87,0				
2. 1250	50,5-52,5	1000	700	50,0-53,0				
				39,0-42,0				
6. <u>243kW/330PS</u> / <u>2500/min</u> - RQV 300-1250 ABV 13621D a = 0,5 mm								
1250	78,5-80,5	1290-1300*1000	700	77,0-80,0	100	119-129		
				73,0-76,0				
7. <u>259kW/352PS</u> / <u>2300/min</u> - RQV 300-1150 AB898L, 1016L (V12264)								
1150	84,5-86,5	1190-1200*	400	max. 82,5	100	119-129		
8. <u>259kW/352PS</u> / <u>2300/min</u> - RQV 300-1150 AB988DL (V13118D) a = 0,5 mm								
1150	84,5-86,5	1190-1200*1000	700	82,5-85,5	100	119-129		
				86,5-89,5				
			700	86,5-89,5				
9. <u>247kW/336/S</u> / <u>2300/min</u> - RQV 300-1150 AB962L								
1150	83,5-85,5	1190-1200*	400	max.82,5	100	119-129		
10. <u>236kW/320PS</u> / <u>2150/min</u> - RQV 300/750-1075 AB931L (V12575)								
1075	83,5-85,5	1190-1200*	400	max.82,5	100	119-129		

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
11. 236kW/320PS /		2150/min	- RQV 300-1075 AB988DL (V13120D) ABV13162D				a = 0,5 mm	
1075	83,5-85,5	1115-1125*	1000	81,5-84,5	100	119-129		
			700	84,5-87,5				
			400	max. 82,5				
12. 199kW/270PS /		2150/min	- RQV 300-1075 ABV13945D				a = 1,2 mm	
1075	71,5-73,5	115-1125*	1050	70,5-72,5	100	119-129		
			800	83,0-86,0				
13. 221kW/300PS /		2000/min	- RQV 300-1000 AB 1006DL (V13121D) ABV13163D				a = 0,5 mm	
1000	80,5-82,5	1040-1050*	700	83,5-86,5	100	119-129		
14. 200kW/272PS /		2000/min	- RQV 300-1000 ABV13550					
1000	80,5-82,5	1040-1050*			100	119-129		
15. 202kW/275PS /		1800/min	- RQV 300-900 ABV 13549 300/650-900 ABV12263					
900	80,5-82,5	940-950*			100	119-129		
16. 171kW/232PS /		1500/min	- RQV 300-750 AB998L (V12262)					
750	80,5-82,5	790-800*	400	max. 82,5	100	119-129		
F12 L 413 FW								
17. 1-243kW/330PS /		2500/min	-RQV 300-1250 ABV13928 D				a = 0,5 mm	
2-216kW/294PS /		2500/min						
1.	1250	79,5-81,5	1290-1300*	800	78,0-81,0	100	119-129	
2.	1250	74,5-76,5	1290-1300*	800	71,0-74,0			
18. 1-230kW/313PS /		2300/min	-RQV 300-1150 ABV13929D				a = 0,5 mm	
2-193kW/262PS /		2300/min						
1.	1150	78,5-80,5	1190-1200*	800	78,0-81,0	100	119-129	
2.	1150	68,5-70,5	1190-1200*	800	68,0-71,0			
19. 1-202kW/274PS /		2150/min	-RQV 300-1075 ABV13930D				a = 0,5 mm	
2-183kW/248PS /		2150/min						
1.	1075	73,5-75,5	1115-1125*	800	74,0-77,0	100	119-129	
2.	1075	67,5-69,5	1115-1125*	800	68,0-71,0			

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/40MB 7,4 a
5. Edition

Testoil-ISO 4113

PES G A 90 C 410 RS 2340 RQV 250-1300 AB 803 D
.. D .. RQV 325-1050 AB 923 D
RQV 250-1300 AB 944 D

supersedes 6.75
company: OM Brescia
engine: CP 3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,8 - 6,3	0,4			
	6	2,5 - 3,4				
	12	10,2 - 11,1				
200	9	3,2 - 4,1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV.. 803 D

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
ca. 66	1340 1450 1550 1680	15,0-17,4 8,2-12,8 0,5- 7,9 0	-	-	-	ca. 10	140 250 400 630	6,0-8,0 4,2-6,1 0,2-1,4 0	1340	8,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1300	74,0-76,0	1320	1000 600	72,5-75,5 64,5-67,5	100	ca. 15mmRW	1300 600	0 0,1-0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

RQV .. 923 D

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1060 1120 1220 1310	15,0-18,0 9,7-14,4 0 - 7 0	-	-	-	ca. 18	150 250 380 670	9,6-11,7 7,4-10,0 2,0- 5,0 0	1060	8,3

Torque control travel a = 0,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1050	77,5 - 78,5 (75,5-80,5)	1090-1100*	500	66,0 - 69,0 (64,0-71,0)	100	15,0-15,6mm	RW	
					Change-over point 200-270 U/min		1060	0
							600	0,3-0,4

Checking values in brackets

* 1 mm less control rod travel than col 2

** With overspeed sensor - adjust so that lamp lights up at n = 1455-1465. After adjusting the sensor, check full load!

B. Governor Settings

RQV .. 944 D

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1340 1450 1550 1680	15,0-17,4 8,2-12,8 0,5- 7,9 0	-	-	-	ca. 10	140 250 400 630	6,0-8,0 4,2-6,1 0,2-1,4 0	1340	8,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1300	74,0 - 76,0	1340-1350* **	1100 500	73,5 - 76,5 61,0 - 64,0	100	ca. 15mm	RW	
							1300	0
							600	0,1-0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (1A) and Governors

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WPP 001/4 KHD 6,1 a

7. edition

410

En

PES 6 A 85 D 410/3 RS 2366 RSV 325-1400 A8B 674D, 707D superseded by 1.85
 .. RS 2415 .. ABC 674D, 707D company KHD
 .. RS 2532 325-1150 A8B 674D, 707D engine BF 6 L 913
 Note page 3 A8C 674D, 707D

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9-2,0$ mm (from BDC)
 $(1,85-2,05)$

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1250	12,4+0,1	8,4-8,5	0,3(0,45)			
325	6,6-6,8	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RSV 325-1400 A 8 B 674 D, 707 D

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,7-1,0	-	-	-	ca. 21	325	6,2	500	13,7-13,8
	x =						100	min.19,0	1000	13,3-13,5
							325	6,6-6,8	1400	12,4-12,5
ca. 71	11,4	1440-1450					585-645	= 2,0		
2a	4,0	1485-1515					700	max.1,0		
	1620	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA (*)	0,7 bar	(*)	LDA (*)	0,7 bar	100	17,6-18,2 mm RW	325	6,7	
(*) Note page 3			LDA 500	0 bar 60,0-63,0 (58,0-65,0)					

Checking values in brackets

* 1 mm less control rod travel than col 2

4.85

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
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H1

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B. Governor Settings

EP/RSV 325-1150 A8B674D, 707 D

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 56	1150	16,0	without auxiliary spring			ca. 21	325	5,5	1130	0
	1200	11,1					200	19 - 21		
②a	1250	5,4	with auxiliary spring			ca. 21	325	5,5-5,8	500	1,0-1,2
	1220	7,5-10,4					500	1,4-3,4		
	1300	1,3-3,6					660	0 -1,5		
	1380	0,3-1,5								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to... rev/min		rev/min cm/1000 strokes		rev/min cm/1000 strokes		rev/min Control rod travel mm	
1	2	3		4	5	6	7	8	9
LDA	0,7 bar			LDA	0,7 bar	100	119,5-129,5	325	5,5**
Note page 3				LDA 500	0 bar				
					57,5-59,5				

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing
 XXXXXX

Purpose/governor	Setting	Measurement	Control rod travel - diminution XXX mm XXX
	Gauge pressure = bar	Gauge pressure = bar	XXX
all governors	0,38	0,10	0,2 - 0,3 1,6 - 2,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

En

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

- 3 -

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

BF 6 L 913 - PES 6 A D.,RS2366, 2415

F or B - output at ... min/l

Testoil-ISO 4113

1400	88,0 - 90,0	1420	800	80,0 - 83,0	160 PS /	n = 2800
1400	84,0 - 86,0	1420	800	66,0 - 69,0	142 PS /	n = 2800
1325	90,5 - 92,5	1340	850	88,5 - 90,5	168 PS /	n = 2650
1325	87,5 - 89,5	1340	800	82,5 - 85,5	160 PS /	n = 2650
1325	82,5 - 84,5	1340	800	67,5 - 70,5	140 PS /	n = 2650
1250	87,0 - 89,0	1270	800	84,5 - 87,5	160 PS /	n = 2500
1250	83,0 - 85,0	1270	800	77,5 - 80,5	148 PS /	n = 2500
1250	81,0 - 83,0	1270	800	75,5 - 77,5	140 PS /	n = 2500
1200	86,0 - 88,0	1220	800	84,5 - 87,5	156 PS /	n = 2400
1200	78,0 - 80,0	1220	800	68,0 - 71,0	135 PS /	n = 2400
1165	84,0 - 86,0	1180	800	84,5 - 87,5	152 PS /	n = 2330
1150	83,5 - 85,5	1165	800	84,5 - 87,5	152 PS /	n = 2300
1150	80,0 - 82,0	1165	800	79,0 - 81,0	142 PS /	n = 2300
1100	82,0 - 84,0	1115	800	84,5 - 87,5	147 PS /	n = 2200
1075	82,0 - 84,0	1090	800	84,5 - 87,5	144 PS /	n = 2150
1075	78,0 - 80,0	1090	800	76,0 - 79,0	136 PS /	n = 2150
1050	76,5 - 78,5	1065	800	73,5 - 76,5	130 PS /	n = 2100
1000	82,5 - 84,5	1015	800	84,5 - 87,5	137 PS /	n = 2000
1000	77,0 - 79,0	1015	800	79,5 - 82,5	130 PS /	n = 2000
900	82,0 - 84,0	910	800	84,5 - 87,5	125 PS /	n = 1800
875	68,0 - 70,0	885	800	66,0 - 69,0	106 PS /	n = 1750
750	85,0 - 87,0	760	-	-	105 PS /	n = 1500
750	78,0 - 80,0	760	-	-	100 PS /	n = 1500

PLEASE NOTE

- ** With Liebherr excavators: single-lever control, therefore use shorter screw 1 423 400 031 and set this at 0.3 - 1.0 before the stop.
- LDA adjustment to be carried out according to VDT-W-420/305.
- Dimension H = 22.5 mm = basic setting of LDA.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/40 MB 4,4 e
2. Edition

En

PES 4 A 90 D 410 RS 2442 RQV 325-1050 AB 922 D
Komb.-Nr. 0 400 844 066

supersedes 8.75
company: OMB
engine: CO 3..

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,15-2,25}
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,1 - 5,5	0,4			
	6	1,6 - 2,6				
200	9	1,9 - 2,9				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
ca. 68	1060 1120 1220 1310	15,0-18,0 9,7-14,4 0-7 0	-	-	-	ca. 18	150 250 380 670	9,6-11,7 7,4-10,0 2,0- 5,0 0	1060	8,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1050	83,5-84,5 (81,5-86,5)	1090-1100*	-	-	100	15,0-15,6 mm RW	1060 600	0 0,3-0,4
					Change-over point 200-270 U/min			

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

Test Specifications Fuel Injection Pumps and Governors

En

Testoil-ISO 4113

PE 6 A 90 D 410 RS 2524 RSV 250-750 A 7 B 2124 L
Komb.-Nr. 0 400 676 165

supersedes 3.84
company: DAF
engine: DH 825

Cold-start test on EP/RSV governor according to VDT-I-420/114
Values apply to fuel-injection test tubing 1 680 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^(2,25-2,4) 2,30-2,40 mm (from BDC) RW = 9,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	9,4-9,5	7,9-8,1	0,4(0,55)			
250	6,3-6,5	1,9-2,5	0,2(0,4)			

Port closing difference between control-rod travel 9 mm and max. 4,5-5,5° camshaft

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 16	250	6,4	-	-
	x =	3,25					100	min. 19,0		
							250	**		
							260-320	=2,0		
⑤ a. 40	770-780 =	8,4								
	785-805 =	4,0								
	955(0)	3-1,7								

** Set idle-speed auxiliary spring at 2 mm control-rod travel, then turn back 1/2 turn.
The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
750	78,5 - 80,5 (76,5 - 82,5)	760-770*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 1 g 4

3. Edition
En

PES 6 A 85 D 410/3 RS 2611
Komb.-Nr. 0 400 866 111

RSV 325-1200 AOB 2148 L
AOC 2148 L

supersedes 5.84
company: KHD
engine: F 6 L 913
tractor DX 120-S 21
84 kW (114 PS)
at 2400 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,5-2,6}
(2,45-2,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	11,3+0,1	6,9 - 7,0	0,3(0,45)			
325	8,4-8,6	0,9 - 1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 32	325	8,5	1200	11,3-11,4
	x =	4,0							975	11,6-11,9
⑤ ca. 57	10,3	1240-1250					325	8,4-8,6	500	11,8-11,9
	4,0	1315-1345					450-510	=2,0**		
	1425	0,3-1,7								

** Set idle-speed auxiliary spring at 2 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1200	69,5-70,5 (67,5-72,5)	1240-1250*	800	63,5-65,5 (61,0-68,0)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 FOR 4,2 g

3. Edition

En

PES 4 A 90 D 210 RS 2627 RSV 350-1300 AOB 2144 L
Komb.-Nr. 0 400 864 052 AOC 2144 L

supersedes 10.83
company: Ford
engine: Dover 254

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

At port closing the locating pin must engage in the slot of the pointer.

Port closing at prestroke ^{2,7-2,8}
(2,65-2,85) mm (from BDC) bei RW 9,0 - 12,0 mm

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	13,5+0,1	7,4 - 7,5	0,3(0,45)			
350	7,2-7,4	0,7 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 35	350	6,9	-	-
	X =	3,5								
ca. 69	12,5	1365-1375					350	7,3-7,5		
⑤	4,0	1530-1560					560-520=2,0			
	1705	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	73,5-74,5 (71,5-76,5)	1365-1375*	-	-	100	76,0-90,0 (73,0-93,0) = 19,5 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,4 d
2. Edición

En

PES 6 A 95 D 410 LS 2644 RQV 250-1100 AB 1178 L
Komb.-Nr. 0 400 846 520

supersedes 9.83
company: MAN
engine: D2566ME

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{1,5 - 1,6}{(1,45 - 1,65)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0+0,1	12,5-12,7	0,35(0,6)			
250	6,9-7,1	0,9-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1125	15,2-17,8	-	-	-	ca. 12	100	min. 8,5	200	0,7-0,9
ca. 48	11,0 4,0 1300	1140-1150 1175-1205 0-1,0					250	6,9-7,1	500 800 1100	3,7-4,2 5,3-5,8 8,1

Torque control travel a = - mm

** Setting of idle stop at 250 min/l to 7,0 mm control-rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	124,5-126,5 (122,5-128,5)	1140-1150*	500	107,5-113,5 (105,0-116,0)	100	121,5-131,5 (118,5-134,5 = 14,0-14,6 mm RW)	-	-
			750	113,0-116,0 (110,5-118,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VAU 5,4 a 1

2. Edition

En

PES 6 A 95 D 320 RS 2646
Komb.-Nr. 0 400 846 533

RQV 300-1300 AB 1163-1 R

supersedes 9.84

company: Vauxhall

engine: 330 T/C

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,5-2,6 \\ (2,45-2,65) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
810	9,7-9,8	6,4-6,6	0,35(0,6)			
300	5,9-6,1	0,8-1,4	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1440	15,2-17,8	-	-	-	ca. 17	100	min. 7,4	275	0,9-1,1
ca. 61	8,7 4,0 1600	1350-1360 1455-1485 0-1,0				350-490	300	5,9-6,1	500 1000 1300	3,1-3,5 5,7-5,8 8,0

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
810	63,5-65,5 (61,5-67,5)	1350-1360*	1200 500	71,5-74,5 (69,5-76,5) 52,0-55,0 (50,0-57,0)	100 300	86,5-96,5 (83,5-99,5) = 19,5-21,0 mm RW 8,0-14,0 (5,5-16,5)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

BOSCH

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H9

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 6,0 a

2. Edición

PES 6 A 90 D 410 RS 2667 RQV 300-1400 AB 1065-4 L

Komb.-Nr. 0 400 846 522

Values apply to fuel-injection test tubing
1 680 750 015

supersedes 11.84
company Daimler-Benz
OM 366
engine: 100 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,25-2,35}
(2,20-2,40) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,1+0,1	6,4-6,5	0,3(0,45)			
300	8,9-9,1	0,9-1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 25	100 300	min. 10,3 8,9-9,1	250 630 1020 1400	0,7-0,9 3,8-3,9 5,3-5,4 7,7
ca. 65	10,1 4,0 1630	1440-1450 1545-1575 0-1,0				540-680 ③a				

Torque control travel a = 1,1 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1400	63,5-64,5 (61,5-66,5)	1440-1450*	500 900	51,0-54,0 (48,5-56,5) 53,5-56,5 (51,0-59,0)	100	78,0-88,0 (75,0-91,0) =16,4-17,0 mm RW	1400 500 900 1100	11,1+0,1 12,3+0,1 11,8+0,2 11,4+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

PES 5 A 95 D 410 RS 2680 RQV 300-1150 AB 1088-1 L
Komb.-Nr. 0 400 845 080

supersedes 3.84
company: KHD
engine: F 5 L 413 FRW
85 kW

Tunnelling or mining vehicles

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{1,5-1,6}{(1,45-1,65)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	9,0-9,1	7,2-7,4	0,35(0,6)			
300	6,4-6,6	1,3-1,7	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1190	15,2-17,8	-	-	-	ca. 13	100	min.8,0	300	1,0-1,5
ca. 64	8,0 4,0 1400	1190-1200 1240-1270 0-1,0					300	6,4-6,6	625 1195 1350	3,2-3,5 8,5-8,6 10,7

Torque control travel a = 1,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	72,0-74,0 (70,0-76,0)	1190-1200*	600	80,5-83,5 (78,0-86,0)	100	115,0-125,0 (112,0-128,0)	1150	9,0-9,1
			650	98,5-101,5		= 14,0-14,6 mm RW	500	0,4+0,1
			**	(96,0-104,0)			800	0,0+0,2
							1000	9,2-9,5

Checking values in brackets

** Adjusted with the full-load stop unblocked.
Solenoid switched off.

* 1 mm less control rod travel than col. 2

5.85

BOSCH

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Test Specifications Fuel Injection Pumps ① and Governors

PES 6 A 95 D 410 RS 2681 RQV 300-1150 AB 1088-1 L
Komb.-Nr. 0 400 846 530

supersedes 8.84
company: KHD
engine: F 6 L 413 FRW
102 kW
Tunnelling or mining vehicles

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (1,45-1,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	9,0-9,1	7,2-7,4	0,35(0,6)			
300	6,4-6,6	1,3-1,7	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1190	15,2-17,8	-	-	-	ca. 13	100	min.8,0	300	1,0-1,5
ca. 64	8,0	1190-1200					300	6,4-6,6	625	3,2-3,5
	4,0	1240-1270							1195	8,5-8,6
	400	0-1,0				315-415			1350	10,7

Torque control travel a = 1,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	72,0-74,0 (70,0-76,0)	1190-1200*	650	80,5-83,5 (78,0-86,0)	100	115,0-125,0 (112,0-128,0)	1150	9,0-9,1
							500	10,4+0,1
							800	10,0+0,2
							1000	9,2-9,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

En

Testoil-ISO 4113

PES 4 M 55 C 320 RS 152-1
RSF 375/2250 M 55-1
Komb.-Nr. 0 400 074 960 / Sales model 0 400 074 959
1- 3- 4 - 2
0-90-180-270

supersedes 6.84
company Daimler-Benz
engine OM 601
53 kW
Schweden

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Note: Before starting testing, observe the important instructions on the reverse.

Port closing at prestroke 2,00-2,10 mm (from BDC)
(1,95-2,15) RW 20,0-22,0 mm

Control rod travel

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	11,1+0,1	3,1-3,2	0,25(0,3)			
375 1800 2200	5,4-5,6	0,5-0,6	0,10(0,15) 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
13-17	min. 11,5	250	50	10,3-10,5	2200		100	min. 20,1
①	5,4-5,6	375	⑦	7,8-8,2	2500		1800	10,8-11,0
②	4,4-4,6	400 **	⑧	-			1000	11,1-11,2
③	-		⑨	0-1,0	2950		⑬	
④	1,5	630-730	⑩				⑭	
⑤			⑪				⑮	
							⑯	
							⑰	
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C. Settings for Fuel Injection Pump with Governor Mounted

Full-load delivery		Full-load speed regulation	Variations in fuel delivery		Starting fuel delivery Idle		Difference
Test oil temp 40°C (104°F)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	cm ³ /1000 strokes
1	2	3	4	5	6	7	8
2200	33,0-35,0 (32,0-36,0)	2500* 7,8-8,2 mm RW	1800	34,0-35,5 (33,0-36,5)	100	min. 55	6,0
					375	5,0-6,0 (4,5-9,0)	1,0
					2500	22,0-26,0 (21,0-27,0)	(1,5)
							2,5
							(3,0) See Point 8 a

Checking values in brackets

* ca. 2,4 less control rod travel than in Column 2

Important:

Test specifications apply to control rod stop screw with collar 6.3 mm dia. and thread M 10 x 1.

For pump versions with control rod stop screw with collar 5.3 mm dia. and thread M 8 x 1, all specified control rod travel values must be increased by 0.5 mm.

1. **** Checking the idle speed auxiliary spring setting at $n = 400$ rpm, control rod travel (4.3-4.7 mm)**
2. **Setting the idle control lever position:**
At 1000 rpm, control rod travel 0.9 - 1.0 mm.
3. **Checking the idle speed auxiliary spring shut-off**
Control lever position 50° , after change-over point (from starting curve) until 1000 rpm, max. permissible control rod travel 0.2 mm. Control lever position 48.5° ; after change-over point (from starting curve) control rod travel must be greater than 0.2 mm.
4. **Checking the pneumatic shut-off box**
Control lever on idle stop.
At $n = 375$ rpm and $p_u = 450$ mbar (vacuum) (338 mm Hg), the control rod must travel rapidly to control rod position = 0 mm.
5. Overflow valve 1 469 990 351,
6. Port closing difference between largest/smallest value max. 1° camshaft angle.
7. **Setting the idle speed control rod travel on the pneumatic idle boost box**
When doing this, release the lock nut.
8. **Checking the pneumatic idle boost:**
With 0.4 bar vacuum, $n = 425$ rpm, control rod travel = (7.0 - 8,6 mm)
Delivery = (11.0 - 19.0 $\text{cm}^3/1000$ strokes).
9. **Leak test (vacuum test) of pneumatic idle boost box**
Apply 0.8 bar vacuum to the pneumatic idle boost box via a three-way valve and a pressure gauge. Using the three-way valve, disconnect the vacuum supply from the pneumatic idle boost box and pressure gauge. Permissible pressure drop 30 mbar in 15 sec.
10. **Start-of-delivery sensor setting**
Start-of-delivery sensor setting and locking according to average port closing value for all cylinders 19.5 ± 0.2 (0.3°) camshaft angle after cylinder 1.

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 2,0 m

1. Edition

En

Testoil-ISO 4113

PES 4 M 55 C 320 RS 152-3
RSF 375/2300 M 55-5
Komb.-Nr. 0 400 074 934

supersedes -
company **Daimler-Benz**
engine **OM 601**
53 kW
Schweden

1- 3- 4 - 2
0-90-180-270

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **2,00-2,10**
(1,95-2,15) mm (from BDC)
RW = **20,0-22,0 mm**

Note: Before starting testing, observe the important instructions on the reverse.

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	11,1+0,1	3,1-3,2	0,25 (0,3)			
375 1800 2200	5,4-5,6	0,5-0,6	0,1(0,15) 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
13-17	① min. 11,5 ② 5,4-5,6 ③ 4,4-4,6 ④ 1,5 ⑤	250 375 400** 630-730	50	⑦ 10,3-10,5 ⑧ 7,8-8,2 ⑨ 0 - 1,0 ⑩ ⑪	5 2200 2500 2950		⑫ 100 ⑬ 1800 ⑭ 2200 ⑯ Switching point	min. 20,1 10,8-11,0 10,3-10,5

C. Settings for Fuel Injection Pump with Governor Mounted

Full-load delivery		Full-load speed regulation	Variations in fuel delivery		Starting fuel delivery		Difference
Test oil temp 40°C (104°F)					Idle		
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	cm ³ /1000 strokes
1	2	3	4	5	6	7	8
2200	33,0-35,0 (32,0-36,0)	2500 * RW = 7,8-8,2	1800	34,0-35,5 (33,0-36,5)	100 375	min. 55 5,0-6,0 (4,5-9,0) 22,0-26,0 (21,0-27,0)	6,0 1,0 (1,5) 2,5 See (3,0)Point 8 a
			1000	31,0-32,0 (30,0-33,0)	2500		⑭ ⑮ ⑯

Checking values in brackets

* ca. 2,4

less control rod travel than in Column 2

1. ** Checking the idle speed auxiliary spring setting at $n = 400$ rpm, control rod travel (4.3-4.7 mm)
2. Setting the idle control lever position:
At 1000 rpm, control rod travel 0.9 - 1.0 mm.
3. Checking the idle speed auxiliary spring shut-off
Control lever position 50° , after change-over point (from starting curve) until 1000 rpm, max. permissible control rod travel 0.2 mm.
Control lever position 48.5° ; after change-over point (from starting curve) control rod travel must be greater than 0.2 mm.
4. Checking the pneumatic shut-off box
Control lever on idle stop.
At $n = 375$ rpm and $p_u = 450$ mbar (vacuum) (338 mm Hg), the control rod must travel rapidly to control rod position = 0 mm.
5. Overflow valve 1 469 990 351,
6. Port closing difference between largest/smallest value max. 1° camshaft angle.
7. Setting the idle speed control rod travel on the pneumatic idle boost box
When doing this, release the lock nut.
8. Checking the pneumatic idle boost:
With 0.4 bar vacuum, $n = 425$ rpm, control rod travel = (7.0 - 8,6 mm)
Delivery = (11.0 - 19.0 $\text{cm}^3/1000$ strokes).
9. Leak test (vacuum test) of pneumatic idle boost box
Apply 0.8 bar vacuum to the pneumatic idle boost box via a three-way valve and a pressure gauge. Using the three-way valve, disconnect the vacuum supply from the pneumatic idle boost box and pressure gauge. Permissible pressure drop 30 mbar in 15 sec.
10. Start-of-delivery sensor setting
Start-of-delivery sensor setting and locking according to average port closing value for all cylinders 19.5 ± 0.2 (0.3°) camshaft angle after cylinder 1.

En

Test Specifications Fuel Injection Pumps ① and Governors

Testo-ISO 4119

PES 6 MW 80/720 RS 1015 RQV 300-1600 MW 47
0 403 446 142
1- 5- 3 - 6 - 2 - 4
0-60-120-180-240-300

supersedes 12.83
company: Iveco-Fiat
engine: 8060.24.670
121 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,10-2,20$ mm (from BDC) RW = 9,0 - 12,0 mm
(2,05-2,25)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,7+0,1	6,0-6,2	0,35(0,6)			
300	9,2-9,3	1,05-1,45	0,35(0,55)			
1600	12,7+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1640 1850	15,2-17,8 0-1,0				ca. 22	100 300	min. 10,8 9,2-9,3		
ca. 65	11,7 4,0	1640-1650 1785-1815				330-800				

Torque control travel a = mm

Test electrically unlocked starting delivery with 24 V.

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1000	60,0-62,0 (58,5-63,5)	1640-1650*	1600	69,0-73,0 (67,0-75,0)	100	19-21 mm RW 120,0-130,0 (117,0-133,0)		
					300	10,5-14,5 (8,0-17,0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 PER 10,0 d

2. Edition

Testoil-ISO 4113

PES 8 MW 100/720 RS 1019 RQV 375-1200 MW 38
0 403 448 109

supersedes -
company: Perkins
engine: AIV 8.640
177 kW (241 PS)

1- 8- 7- 5 - 4 - 3 - 6 - 2
0-45-90-135-180-225-270-315 + 0,5 (0,75)
+ Port-closing mark, see reverse

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,00-3,10}{(2,95-3,15)}$ mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	11,9+0,1	9,9 - 10,1	0,35(0,6)			
375	6,8-7,0	1,15- 1,55	0,35(0,55)			
700	11,9+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed				Intermediate rated speed				Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	1a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	3	rev/min 10	mm 11
max.	1200 1400	15,2-17,8 0,1- 1,0		-	-	-		ca. 14	375 100	6,8-7,0 min.8,5			
ca.64	11,0 4,0	1240-1250 1340-1370						3a	630-690= 2,0				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a	Starting fuel delivery idle switching point ⑥	Torque-control travel ⑤			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1200	99,0-101,0 (95,0-101,0)	1240-1250 *	700	97,0-101,0 (95,0-103,0)	100	RW 19-21 min. 140,0		
						100-280 (80-290)		

Checking values in brackets

* 1 mm less control rod travel than col. 7

Port closing and TDC markings

Comb. - No.

° camshaft between port-closing
and TDC

... 109

at control-rod travel 9 - 12 mm

15°

En

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 PER 10,0 g
2. Edition

En

Testoil-ISO 4113

PES 8 MW 100/720 RS 1019 RQV 375-1200 MW 38-1
0 403 448 111

supersedes -
company: Perkins
engine: MIV8.640
194 kW (264 PS)

1- 8- 7- 5 - 4 - 3 - 6 - 2
0-45-90-135-180-225-270-315 + 0,50 (0,75)
+ Port-closing mark, see reverse

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,00-3,10}{(2,95-3,15)}$ mm (from BDC) 9-12,0 mm RW

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	11,6+0,1	10,1 - 10,3	0,35(0,6)			
375	6,8-7,0	1,15 - 1,55	0,35(0,55)			
700	11,6+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200 1400	15,2-17,8 0,1- 1,0	-	-	-	ca. 16	375 100	6,8-7,0 min.8,5		
ca.64	10,6 4,0	1240-1250 1315-1345				③a	560-620= 2,0			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1200	101,0-103,0 (99,0-105,0)	1240-1250*	700	93,0-97,0 (91,0-99,0)	100	min. 140,0 100-280 (80-290)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

Port closing and TDC markings

Comb. - No.

° camshaft between port-closing
and TDC

... 111

at control-rod travel 9,0 - 12,0 mm

15°

Test Specifications Fuel Injection Pumps ① and Governors

Testoil-ISO 4113

PES 8 MW 100/720 RS 1020
0 403 448 112

RQV 375-1200 MW 38

supersedes -
company: Perkins
engine: AIV 8.640
153 kW (208 PS)

1- 8- 7- 5 - 4 - 3 - 6 - 2
0-45-90-135-180-225-270-315

+ Port-closing mark, see reverse

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,00-3,10}{(2,95-3,15)}$ mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,0+0,1	8,2 - 8,4	0,35(0,6)			
375	5,6-5,8	1,35 - 1,75	0,35(0,55)			
800	10,0+0,1	7,85 - 8,25	0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200 1400	15,2-17,8 0,1-1,0	-	-	-	ca. 16	375 100	5,6-5,8 min. 7,3		
ca. 64	9,0 4,0	1240-1250 1305-1385				③a	540-600 = 2,0			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1200	82,0-84,0 (80,0-86,0)	1240-1250*	800	78,5-82,5 (76,5-84,5)	100	min. 140,0 (137,0)		
						100-280 (80-290)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Port closing and TDC markings

Comb. - No.

° camshaft between port-closing
and TDC

... 112

at control-rod travel 9,0 - 12,0 mm

15°

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 11,8 m

2. Edition

En

PE6P100A720RS15

RSV350-750P1/365R

supersedes 10.82

Komb.-Nr. 0 401 876 142

P1A365R

company: Daimler-Benz

engine:

OM 355

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,8-2,9}{(2,75-2,95)}$ mm (from BDC) RW= 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
730	12,7 +0,1	10,6-10,8	0,3(0,6)			
350	7,1-7,3	1,4- 2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	750	0,3-1,0	-	-	-	ca. 17	350	7,2	-	-
	x =	3,25					100	min. 19,5		
ca. 33	11,7	750-760					350	7,1-7,3		
⑤	4,6	780-795					355-415	= 2,0		
	850	0,3-1,7						* *		

* * Set idle-speed auxiliary spring at 1,5-2,0 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
	730	106,0-108,0 (104,0-110,0)	750-760 *	-	-	100	140,0-160,0 (136,0-164,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 PER 10,0 i
2. Edition

En

Testoil-ISO 4113

PES 8 MW 100/720 RS 1021 RQV 250-1300 MW 30
0 403 448 108

supersedes -
company: Perkins
engine: V8.640 V
160 kW (218 PS)

1- 8- 7- 5 - 4 - 3 - 6 - 2
0-45-90-135-180-225-270-315 + 0,50 (0,75)
+ Port-closing mark, see reverse

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,00-3,10 mm (from BDC) RW 9,0-12,0 mm
(2,95-3,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	10,7-0,1	9,0 - 9,2	0,35(0,6)			
250	6,4-6,6	1,35 - 1,75	0,35(0,55)			
800	10,7+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed				Intermediate rated speed				Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	①a ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11	
max.	1300 1500	15,2-17,8 0-1,0		-	-	-	ca. 14	250 100	6,4-6,6 min. 8,1			
ca. 64	9,7 4,0	1340-1350 1425-1455					③a	490-550 = 2,0				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤ Control rod travel mm	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
1300	90,0-92,0 (88,0-94,0)	1340-1350*	800	89,5-93,5 (87,5-95,5)	100	min. 140		
					100-180 (80-200)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

Port closing and TDC markings

Comb. - No.	° camshaft between port-closing and TDC
... 108	at control-rod travel 9,0 - 12,0 mm
	15°

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 PER 10,0 n
2. Edition

En

Testoil-ISO 4113

PES 8 MW 100/720 RS 1106 RQV 250-1300 MW 30-1
0 403 448 117

supersedes 9.82
company: Perkins
engine: V 8.640 V
160 kW (218 PS)

1- 8- 7- 5 - 4 - 3 - 6 - 2
0-45-90-135-180-225-270-315
+ Port-closing mark, see reverse

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,00-3,10$ mm (from BDC) RW $9,0-12,0$ mm
($2,95-3,15$)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	10,7-0,1	9,0 - 9,2	0,35(0,6)			
250	6,4-6,6	1,35-1,75	0,35(0,55)			
800	10,7+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1300 1550	15,2-17,8 0 - 1,0	-	-	-	ca. 14	250 100	6,4-6,6 min.8,1		
ca.64	9,7 4,0	1365-1375 1450-1480				③a	490-550= 2,0			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min ④a	rev/min 4	cm ³ /1000 strokes ⑤b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1300	90,0-92,0 (88,0-94,0)	1340-1350*	800	89,5-93,5 (87,5-95,5)	100	110,0-120,0		
						100-180 (80-200)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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Port closing and TDC markings

Comb. - No.

° camshaft between port-closing
and TDC

... 117

at control-rod travel 9,0 - 12,0 mm

15°

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 a 1

2. Edition

En

PE 6 P 110 A 320 RS 141

RQV 250-1100 PA 371/2 R

Komb.-Nr. 0 401 846 377

supersedes 7.83

company: Volvo

engine: TD 120 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,6-2,7}
(2,55-2,75) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,3+0,1	18,1-18,3	0,4(0,8)			2,5 ± 0,1
250	5,0-5,2	1,1-1,5	0,3(0,6)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 13	100	min. 6,5	200	0,7-0,9
ca. 46	10,3 4,0 1300	1140-1150 1220-1250 0-1,0					250 320-380 = 2,0	5,0-5,2	500 800 1000	3,0-3,3 5,1-5,4 7,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 181,0-183,0 (178,0-185,0)	1140-1150*	LDA 700	0 bar 125,0-129,0 (123,0-131,0)	100	350,0-390,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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D. Adjustment Test for Manifold Pressure Compensator VOL 12,0 a 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS141 + RQV..PA371-2R	0,90	0	11,3-11,4
		0,50	8,8-8,9
		0,22	10,7-10,8 9,3-9,5

Notes:
 (1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,8 b 1
3. Edition

En

PE 6 P 110/720 RS 176 RSV 300-1100 P 1/303 R
A .. P 1A303 R
Komb.-Nr. 0 401 876 110

supersedes 5.84
company Daimler-Benz
engine OM 355
Schmitt
snow plough

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8,2,9}
(2,75-2,95) mm (from BDC) RW = 9,0 - 12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,7+0,1	13,5-13,7	0,4 (0,8)			
300	7,5-7,7	1,2- 1,8	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
max.	800	0,3-0,7	-	-	-	ca.21	300	7,1		
	x = 4,75						300	7,5-7,7		
							495-555	= 2,0		
ca.56	11,7	1140-1150								
2a	4,0	1235-1255								
	1260	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
Test oil temp 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
	1100	135,0-137,0 (132,0-140,0)	1140-1150*	-	-	100	170,0-190,0 (166,0-194,0)	0	-

Checking values in brackets

* 1 mm less control rod travel than col 2

7.85

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 11,6 k

6. Edition

En

PE 6 P 120 A 320 RS 372 RSV 250-1100 P5/458R
Komb.-Nr. 0 401 876 229
Note VDT-I-420/114!

supersedes 5.84
company DAF
engine DKS 1160
235 kW (320 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8 - 2,9 \\ (2,75 - 2,95) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	10,9+0,1	19,3 - 19,7	0,5 (0,9)			
250	6,2-6,4	1,1 - 1,5	0,65(0,95)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca. 24	250	5,8	400	11,1+0,1
	x =	5,0					250	6,2-6,4	300	11,3+0,1
							620-680 =	2,0		
⑤ ca. 54	9,9	1140-1150								
	4,0	1260-1290								
	1425	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 850	0,7 bar 193,0-197,0 (190,0-200,0)	1140-1150*	LDA 600	0 bar 135,5-137,5 (132,5-140,5)	100	320,0-360,0 (316,0-364,0) = 19,5 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator DAF 11,6 k

Test at n = **600** rev/min decreasing pressure - in bar gauge pressure
increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE6P120..RS 372 with..P5/458R	0,36		10,6-10,7
		0,70	10,9-11,0
		0	9,8-9,9
		0,28	10,0-10,4

Notes

(1) when n = rev/min and bar (= maximum full-load control rod travel)
gauge pressure =

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 q 1
6. Edition

En

PES 6 P 110 A 720 LS 375 RQV 250-1100 PA 373 DR
Komb.-Nr. 0 402 046 180

supersedes 1.84
company: MAN
engine: D 2566 MTF
206 kW (280 PS)
2200min⁻¹
MAN-Nr. 1-7983

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel injection Pump Settings

Port closing at prestroke ^{3,0 - 3,1}
(2,95-3,15) mm (from BDC) Zyl. 6; RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,4+0,1	14,6-14,9	0,4(0,75)			
250	7,3-7,5	1,0-1,5	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1140	15,2-17,8	-	-	-	ca. 13	100	min.8,9	325	1,7-2,2
ca. 65	11,4 4,0	1140-1150 1225-1255				390-510	250 520	7,3-7,5 580=2,0	900 1100	6,2-6,4 8,0-8,2

Torque control travels = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 146,0-149,0 (143,5-151,5)	1140-1150*	LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)	100	225,0-245,0 (221,0-249,0)	1100 700	12,4+0,1 13,3+0,1
LDA 700	0,7 bar 157,0-161,0 (154,0-164,0)		LDA 500	0 bar 110,0-113,0 (107,5-115,5)	250	10,0-15,0 (7,5-17,5)	900 1000	13,0+0,2 12,5+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.85

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J10

J40

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 P..LS 375 + RQV..PA 373 DR	0,70	0 0,20 0,32	13,3-13,4 11,3-11,4 11,8-11,9 12,6-12,8

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 CAT 7,0 b

2. Edition

En

PES 4 P 80 A 720 LS 852
Komb.-Nr. 9 400 087 301

RQV 350-1000 PA 609-1

supersedes 12.84

company: Caterpillar

engine: 3304 T

107 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{1,65-1,75}{(1,60-1,80)}$ mm (from BDC; RW = 9,0-12,0 mm)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,2+0,1	10,7-10,8	0,25(0,35)			
350	6,7-6,9	1,0-1,7	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1010	15,2-17,8	-	-	-	ca. 17	100	min.11,5		
ca. 68	11,2 4,0 1200	1030-1040 1110-1140 0-1,0					350	6,3-6,6		
							530-590 = 2,0			

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1000	106,5-107,5 (105,0-109,0)	1030-1040*	700	113,0-115,0 (111,0-117,0)	100	17,6-18,6 mm RW	1000	12,2+0,1
			500	109,0-112,0 (107,0-113,0)			850	12,7+0,2
							700	13,1+0,2
							500	13,2+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

BOSCH

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J12

J42

Test Oil ISO 4192

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 7,6 g

2. Edition

En

US-PES 6 P 110 A 720 RS 3083 US-RSV 400-1050 P2/488-1

supersedes 8.01

Komb.-Nr. 9 400 231 175

company John Deere

engine 6466 A

168 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,45-3,55) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1050	12,4+0,1	14,7-15,0	0,4(0,75)			
400	6,6-6,8	1,4-2,0	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 3	400	6,2	1050	12,4-12,5
	X=						100	min. 19,0	700	13,6-13,9
ca. 45	11,4	1095-1105					400	6,6-6,8		
2a	4,0	1175-1205					600-660=2,0			
	1300	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1050 **	1,2 bar 146,5-149,5 (144,0-152,0)	1095-1105*	LDA 700	1,2 bar 179,0-183,0 (176,0-186,0)	100	156,0-176,0 (152,0-180,0)	400	6,7
			LDA 500	0 bar 91,0-95,0 (88,0-98,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

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11.85

J13

113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

DEE 7,6 g

-2-

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	diminution difference mm (1)
US-PES6P..RS3083 +US-RSV..P2/488-1	0		10,4-10,5
		0,66	12,9-13,0
		0,40	11,0-11,4

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

** Setting without a compensating spring retainer at 1 mm control-rod travel less. Boosting of the full load fuel delivery with the compensating spring retainer to 11.5 mm control-rod travel.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4EAO 31,8 a 2
2. Edition

En

PE 12 P 130 A 120 RS 3094 RQV 350-900 PA 618

Komb.-Nr. 0 401 830 703

1-12- 9- 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6

0-45-60-105-120-165-180-225-240-285-300-345 $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 074.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 5. 85

company: Baudouin

V 12 P 15 SRCN

engine:

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	12,2+0,1	30,9 - 31,2	0,6(1,0)			
350	4,8-5,0	2,0 - 2,6	1,0(1,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	940	15,2-17,8	-	-	-	ca. 30	350	4,8-5,0	325	2-1,6
ca. 62	11,2 4,0 1150	940-950 1005-1035 0 - 1,0				350-450			500 750 900	3,1-3,8 6,0-6,4 7,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	309,0-312,0 (305,0-315,0)	940-950 *	-	-	350	20,0-26,0 (16,0-30,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

R 85

BOSCH

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 31,8 a
2. Edition

En

PE 12 P 130 A 120 RS 3094-1 RQV 400-750 PA 632
1 - 12- 9 - 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6
0-45-60-105-120-165-180-225-240-285-300-345°±0,5°(±0,75°)

supersedes 9.83
company: Baudouin
engine: V 12 P 15 SRCN

Values only apply to test nozzle-and-holder assembly Komb.-Nr. 0 401 830 704
1 688 901 019 and fuel-injection test tubing 1 680 750 074.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2 - 3,3}
(3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,4+0,1	30,6-31,0	0,5(0,9)			
400	3,5-3,7	2,1-2,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever mm 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever mm 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever mm 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 24	10,4 4,0 900	750-755 780-790 0 -1,0	-	-	-	ca. 6	100 400 690-750= 2,0	min.5,1 3,5-3,7	375 450- 650 750	0,5-0,7 2,0-2,1 4,3

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	306,0-310,0 (303,0-313,0)	750-755*	-	-	400	21,0-27,0 (18,0-30,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 11,4 n

4. Edition

En

Testoil-ISO 4113

PES 6 P 120 A 820 LS 3095 RSV 350-750 P1/487

supersedes 8.83
company: Daimler-Benz
engine: OM 407 A
169 kW (230 PS)
Komb.-Nr. 0 402 076 717

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,0 - 4,1 \\ (3,95-4,15) \end{matrix}$ mm (from BDC) cyl.6; RW = 9,0-12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
730	12,4+0,1	19,6 - 19,8	0,5(0,8)			
350	5,7-5,9	3,0 - 4,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	700	0,3-1,0	-	-	-	-	-	-	-	-
	x =	2,25								
⑤ ca. 33	11,4	750-755								
	4,0	776-789								
	900	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min	cm ³ /1000 strokes	Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	3	4	5	6	7	8	9
730	196,0-198,0 (193,0-201,0)	745-760 *	-	-	-	100	170,0-190,0 (166,0-194,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 y
3. Edition

PE 6 P 110 A 720 RS 3115 RQV 200-1100 PA 468

supersedes 8.84
company: Saab-Scania
engine: DN 11 01

Komb.-Nr. 0 401 846 764
See page 2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,3-3,4}{(3,25-3,45)}$ mm (from BDC) $RW = 9,0-12,0$ mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,4+0,1	11,9-12,1	0,5(0,8)			3,3 \pm 0,1 (3,0-3,5)
225	5,4-5,6	2,0-2,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1120	15,2-17,8	-	-	-	ca. 11	100 225 330-390=2,0	min.6,9 5,4-5,6	150 470 780 1100	0 -0,3 3,6-4,2 5,6-5,8 8,3
ca. 61	11,4 4,0 1400	1140-1150 1250-1280 0 - 1,0				③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
600	119,0-121,0 (117,0-123,0)	1140-1150	1100	119,5-124,5 (117,0-127,0)	100	230,0-290,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 22.8.1983
- Start of fuel delivery-engine: 21° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 k

3. Edition

En

PE 6 P 120 A 320 RS 3118 RQV 250-1025 PA 657
Komb.-Nr. 0 401 846 772
Values apply to
Calibrating nozzle-and-holder assembly 1 688 901 019
Test-pressure line 1 680 750 067

supersedes 1.85
company: Volvo
engine: TD 121 F
282 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,6 - 2,7}{(2,55-2,75)}$ mm (from BDC) · RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,3+0,1	23,8-24,1	0,5(0,9)			2,5 ± 0,1
250	3,3-3,5	1,8-2,3	0,5(0,7)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1090	15,2-17,8	-	-	-	ca. 10	100	min. 4,8	200	0,7-0,9
ca. 65	12,3 4,0 1250	1085-1095 1150-1180 0-1,0					250	3,3-3,5	430	3,5-3,9
							285-345=2,0		660	6,4-6,6
									945	7,6
									1025	

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	1,2 bar 238,0-241,0 (235,0-244,0)	1065-1075*	LDA 700	0 bar 138,0-142,0 (135,0-145,0)	100	240,0-280,0 = 20,0-21,0 mm RW	-	-
					250	18,0-23,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

Testoil-ISO 4113

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D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 k

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	mm (1) <small>diminution difference</small>
PE 6 P..RS 3118 + RQV..PA 657	1,20	0	13,3 - 13,4
		0,80	8,8 - 9,0
		0,17	13,1 - 13,2
			9,2 - 9,5

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 K 1

3. Edition

En

PE 6 P 120 A 320 RS 3118
Komb.-Nr. 0 401 846 782

RQV 250-1100 PA 657-1

supersedes 5.85

company: Volvo

Calibrating nozzle-and-holder assembly 0 681 443 019
Test-pressure line 1 680 750 067engine: TD 121 FD
282 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,6-2,7}
(2,55-2,75) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,3+0,1	23,8-24,1	0,5 (0,9)			2,5±0,1
250	3,3-3,5	1,9-2,3	0,5 (0,7)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1180	15,2-17,8	-	-	-	ca. 9	100	min. 5,0	200	0,7-0,9
ca. 61	12,0 4,0 1350	1160-1170 1240-1270 0 - 1,0					250 290-340 = 2,0	3,3-3,5	430 660 1040 1100	3,4-3,9 6,4-6,6 7,3

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	1,2 bar 238,0-241,0 (235,0-244,0)	1140-1150 *	LDA 700	0 bar 138,0-142,0 (135,0-145,0)	100	240,0-290,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 K 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	mm (1) difference
PE6P.. RS 3118 + RQV.. PA 657-1	1,20	0	13,5-13,4
		0,80	8,8-9,0
		0,17	13,1-13,2
			9,2-9,5

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 31,8 b

2. Edition

En

PE 12 P 130 A 120 RS 3127 RQV 350-900 PA 618

supersedes 11.84

1-12-9-4-5-8-11-2-3-10-7-6

company: Baudouin

0-45-60-105-120-165-180-225-240-285-300-345° ± 0.5° (±0,75°)

engine: 12 P 15-2 AN-SR

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 074.

Kom.-Nr. 0 401 830 708

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9} (2,75-2,95) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
900	12.2+0.1	30.9-31,2	0.6 (1,0)			
350	4.8-5.0	2.0-2.6	1.6 (1,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	940	15.2-17.8	-	-	-	ca. 30	100	min. 6,4	325	1,1-1,3
							350	4,8-5,0	500	3,1-3,8
ca. 62	11.2	940-950				350-450			750	6,0-6,4
	4.0	1005-1035							900	8,0
	1150	0 - 1.0								

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
900	309.0-312.0 (304.0-316.0)	940-950 *	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 m

3. Edition

En

PE 8 P 110 A 320 LS 3813 RQV 350-1150 PA 378
Komb.-Nr. 0 401 848 740
1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je 45° $\pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

supersedes 9.83
company: Daimler-Benz
engine: OM 422
206 kW

Note VDT-I-401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{4,0-4,1}{(3,95-4,15)}$ mm (from BDC) cyl.8; RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery * cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery ** cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	8
1130	12,6+0,1	12,3-12,5	0,4(0,8)	11,5+0,1	13,1-13,3	n=1150 min ⁻¹
350	8,2-8,3	1,2-1,7	0,4(0,7)	7,4-7,6	1,4-1,8	
			0,6(0,9)	600 1150	C, Sp.4 u.5	

* with return throttle (1) ** without return throttle (2)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1130	15,2-17,8	-	-	-	ca. 14	100	min.8,7	300	0,6-0,9
ca. 62	11,6	1180-1190					350	7,0-7,2	580	3,6-3,8
	4,0	1280-1305							870	5,2-5,3
	1400	0 - 1,0					375-485		1150	7,6

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(1) 1130	123,0-125,0 (120,0-128,0)	1180-1190*	-	-	100	130,0-150,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

MB 14,6 m

- 2 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1170	15,2-17,8	-	-	-	ca. 14	100	min.8,7	300	0,6-0,9
ca. 62	10,5 4,0 1400	1190-1200 1295-1325 0 - 1,0					350	7,0-7,2	580 870 1150	3,6-3,8 5,2-5,3 7,6
							375-485			

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2) 1150	131,0-133,0 (128,5-135,5)	1180-1190*	600 1150	109,0-113,0 (106,0-116,0) 84,0-87,0 (81,0-90,0) **	100	140,0-160,0 (136,0-164,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

** Reduced delivery

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

PE 12 P 130 A 120 RS 3127 RQV 400-750 PA 632

supersedes 5.85

Komb.-Nr. 0 401 830 707

company: Boudouin

1-12- 9- 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6

engine: 12 P 15

0-45-60-105-120-165-180-225-240-285-300-345 ± 5 ° (± 0,75°)

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 074.

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,0+0,1	30,7-31,0	0,6(1,0)			
400	4,4-4,6	2,1-2,7	1,0(1,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed				Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	6	7	8	9	10	11
ca. 25	11,0 4,0 900	750-755 776-789 0-1,0	2a	-	-	-	ca. 6	100 400	min.6,0 4,4-4,6	-	-
							3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
700	307,0-310,0 (303,5-313,5)	750-755*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,0 m
4. Edition

En

PE 6 P 110 A 320 LS 3814 RQV 350-1150 PA 378
Komb.-Nr. 0 401 846 741

supersedes 983
company: Daimler-Benz
engine: OM 421

1-6-3-5-2-4
0-75-120-195-240-315° ± 0,5° (± 0,75°)

Note VDT-I-401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,0-4,1} (3,95-4,15) mm (from BDC) cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery mit RSD (1) cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery ohne RSD (2) cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1130	12,7+0,1	12,3-12,5	0,4(0,8)	12,7+0,1	13,4-13,6	
350	8,2-8,4	1,3-1,9	0,4(0,7)	8,2-8,4	1,3-1,9	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 16	100	min. 8,5	300	0,6-0,9
ca.66	11,7 4,0 1400	1180-1190 1285-1315 0-1,0					350 375-485	8,2 - 8,4	580 870 1150	3,6-3,7 5,2-5,3 7,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
(1) 1130	123,0-125,0 (120,0-128,0)	1170-1180*	-	-	100	130,0-150,0	-	-

Checking values in brackets.

* 1 mm less control rod travel than col. 2

3.85

K4

BOSCH

Geschäftsbereich KM, Kundendienst, Kfz-Ausrüstung.
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K4

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 16	100	min.8,5	300	0,6-0,9
ca. 66	11,7 4,0 1400	1190-1190 1285-1315 0-1,0					350	8,2-8,4	580	3,6-3,7
									870	5,2-5,3
							375-485		1150	7,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2) 1150	134,0-136,0 (131,5-138,5)	1170-1180*	1150	93,0-97,0 (90,0-100,0) **	100	140,0-160,0 (136,0-164,0)	-	-

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than col 2
** Reduced delivery

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 14,6 p 1

2. Edition

En

PE 8 P 120 A 320 LS 3816-10 RSV 650-1150 POA 823

supersedes 1, R5

1-8-7-2-6-3-5-4 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

company Daimler-Benz

Values only apply to test nozzle-and-holder assembly

engine OM 422 A

1 688 901 019 and fuel-injection test tubing 1 680 750 067

206 kW

Komb.-Nr. 0 401 878 70

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$ mm (from BDC Zyl. 8)
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1180	9,3-9,4	13,7-13,9	0,5 (0,9)			
650	3,4-3,6	1,6-2,2	0,8 (1,2)			
975	-	C, Sp. 4 u. 5	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

Test oil ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 24	650	3,6	1180	9,3-9,4
	x = 2,25						650	3,5-3,7	975	10,1-10,2
							655-695	= 2,0	1075	9,6-9,8
ca. 46 2a	8,3	1210-1220								
	4,0	1235-1250								
	1400	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1180	137,0-139,0 (134,0-142,0)	1160-1170*	975	152,0-158,0 (149,0-161,0)	100	140,0-160,0 (136,0-164,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

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K6

K6

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 u
6. Edition

En

PE 6 P 120 A 720 RS 7001 RQV 200-1000 PA 539

supersedes 11.84

company: Scania

engine: DS 11 15

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 015

Komb.-Nr. 0 402 646 801

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

to FD 052: 4,40-4,50
(4,35-4,55)

from FD 141: 5,0-5,1

Port closing at prestroke (4,95-5,15) mm (from BDC) RW = 9,0 - 12,0 mm

TestoISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2+0,1	19,9-20,1	0,6 (0,9)			3,3 + 0,1 **
225	4,6-4,8	1,3-1,7	0,3(0,6)			(3,0 - 3,5)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1000	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	150	0,5-0,8
ca. 60	12,2	1040-1050					225	4,4-4,6	430	3,0-3,5
	4,0	1150-1180					310-370=2,0		720	5,0-5,2
	1300	0 - 1,0							1000	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation: intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery: idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA	0,9 bar	1040-1050*	LDA	0,9 bar	100	240,0-290,0	-	-
700	199,0-201,0 (196,0-204,0)		1000	193,0-201,0 (191,0-203,0)		bei 20,0 - 21,0 mm RW		
			LDA	0 bar				
			500	160,0-164,0 (158,0-166,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 u - 2 -

Test at n = 500 rev/min ^{decreasing} pressure - in bar gauge pressure _{increasing}

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 7001 + ..PA 539	0,42		12,8 - 12,9
		0,90	13,2 - 13,3
		0	11,6 - 11,7
		0,29	11,9 - 12,1

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- for combination with letter index see VDI-I-400/116
- for sealing, see VDI-I-400/117
- test specifications approved by Scania 18.8.1983
- Start of fuel delivery-engine: 17° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 3,0 - 3,1 mm.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,2 a 3
5. Edition

En

PE 8 P 120 A 920/4 LS 7002 RQV 250-1000 PA 547
1-2-7-3-4-5-6-8 je 45° ± 0,5° (± 0,75°)

superseded 10.84
company Scania
engine DS 14 06

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 015

Komb.-Nr. 0 402 648 801

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

from FD 141: 5,0 - 5,1 to FD 052: 4,4 - 4,5
Port closing at prestroke (4,95 - 5,15) mm (from BDC) (4,35 - 4,55)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2+0,1	18,7-18,9	0,6(0,9)			3,3 ± 0,1
225	4,9-5,1	1,0- 1,4	0,3(0,6)			(3,0 - 3,5)

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min 10	mm 11
max.	1000	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	200	1,0-1,2
ca. 60	12,2	1040-1050					225	4,4-4,6	470	3,3-3,8
	4,0	1150-1180					310-370=2,0		730	5,1-5,3
	1250	0 - 1,0				3a			1000	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 187,0-189,0 (184,0-192,0)	1040-1050*	LDA 1000	0,9 bar 183,0-191,0 (181,0-193,0)	100	240,0-290,0 bei 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 137,0-141,0 (135,0-143,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

SCA 1/2 a 3 - 2

Test at n = rev/min increasing pressure = in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel mm (1)
..LS 7002 RQV..PA 547	0,9 bar	0 bar 0,23 bar 0,35 bar	13,2 - 13,3 11,3 - 11,4 11,9 - 12,1 12,8 - 12,9

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDI-1-400/116
- For sealing, see VDI-1-400/117
- Test specifications approved by Scania on Aug. 19.8.1983
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-4-2-6-3-7-8

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to $3,0 \pm 0,1$ mm.

Test Specifications Fuel Injection Pumps **1A** and Governors

40

WPP 001/4 SCA 11,0 y 1
3. Edition

En

PE 6 P 110 A 720 RS 3115 RSV 350-1100 P 1/481

supersedes **8.84**
company **Saab-Scania**
engine **DN 1101**

Komb.-Nr. 0 401 876 728
See page 2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,3-3,4} (3,25-3,45) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,4+0,1	11,9-12,1	0,5(0,7)			3,3 ^{+0,1} (3,0-3,5)
350	5,4-5,6	2,0-2,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Test ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 2	Control rod travel mm 3		Intermediate rated speed 4 5 6			4 Control lever deflection in degrees 7	Lower rated speed rev/min 8		Control rod travel mm 9		3 Torque control rev/min 10	Control rod travel mm 11
	mm	mm rev/min					rev/min	mm	rev/min	mm		
loose	800	0,3-1,0	-	-	-	ca. 30	350	5,0	-	-	-	-
ca. 66	11,4	1140-1150					350	5,4-5,6 480-540 = 2,0				
(2a)	4,0	1210-1240					1350		0,3-1,7			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ..) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
600	119,0-121,0 (117,0-123,0)	1140-1150*	1100	119,5-124,5 (117,0-127,0)	100	240,0-290,0 = 20,0-21,0 mm RW	0 -	-

Checking values in brackets

* 1 mm less control rod travel than col 2

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 22.8.1983
- Start of fuel delivery-engine: 21° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 3,1 c

2. Edition

En

PES 3 A 80 D 320/3 RS 1331 RSV 325-1500 A 2 B 505 DR

supersedes 4.84
company MWM
engine D 226-3, 916-3

Komb.-Nr. 0 400 463 137

1 - 2 - 3 je $120^\circ \pm 0,5^\circ (+ 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,2-2,3 \\ (2,15-2,35) \end{matrix}$ mm (from BDC) RW = 9,0 - 12,0 mm

Testo-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1480	9,0-9,1	4,8 - 4,9	0,25(0,4)			
325	7,4-7,6	1,0 - 1,6	0,2 (0,35)			

Port closing difference between control-rod travel 9 mm and max. 3,5 - 4,5° camshaft
Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
2	3					6	9	10	11	
loose	800	0,3-1,0	-	-	-	ca. 19	325	5,5	-	-
		X = 3,5					100	min. 19,0		
ca. 57	8,0	1530-1540					325	5,9-6,1		
2a	4,0	1570-1600					410-470=2,0mm			
	1740	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to 1 rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1480	48,0 - 49,0 (46,5 - 50,5)	1530-1540*	-	-	100	90,0-106,0 (87,0-109,0) bei RW=19,5 - 21,0 mm	-	-
					325	9,5-15,5 (8,0-17,4)		

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

BOSCH

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K13

K13

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MWM 19,9 b

4. Edition

En

Testoil-ISO 4113

(1) PE6P 120 A 320 RS 353 RSUV 300-750 P 9 A 333/1 R supersedes 10.83
 (2) PE6P 120 A 300/3 RS 342 company: MWM - Südbrenn
 Values only apply to test nozzle-and-holder assembly engine: D/TD/TBD 601-6
 1 688 901 019 and fuel-injection test tubing 1 680 750 074. 601-6 S
 Komb.-Nr. 0 401 876 215 (1)
 0 401 816 053 (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,3-2,4} (2,25-2,45) mm (from BDC) RW=19,5-22,5 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	13,0+0,1	26,0-26,4 (25,7-26,7)	0,5 (0,9)			
300	5,5-5,7	2,6 - 3,2	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1)

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 29	300	5,1	700	13,0-13,1
	x =	5,25					100		450	13,0-13,1
							300	5,5-5,7	325	14,2-14,8
							2,0=	315-375		
ca. 70 ⑤	12,0=790-800									
	4,0=815-845									
	980 =0,3-1,7									

The numbers denote the sequence of the tests

without (2) and

C. Settings for Fuel Injection Pump With Fitted Governor

(1)

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	mm RW	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
			-	-	100	19,5-21,0	-	-
The full-load delivery is adjusted on the engine in accordance with the engine inspection sheet.								

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.85

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,8 g

3. Edition

En

Testoil-ISO 4113

PE 6 P 100 A 720 RS 15 RSV 350-1000 P 4/466 R (1)
RS 15 Z RSV 350 -750 P 1/365 R (2)

supersedes 11.79
company Daimler-Benz
engine OM 355

** Set idle-speed auxiliary spring at 1,5-2,0 mm control-rod travel.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
980	13,7-13,8	11,7 - 12,0	0,3(0,6)	12,0-12,1	9,6 - 9,8	n = 730
350	7,7-7,9	1,3 - 1,9	0,3(0,5)	7,7-7,9	1,2 - 1,8	n = 350

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

466R (1)

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9		
loose	800	0,3 - 1,0				ca. 22	350	5,3	980	13,7-13,8
ca. 58							100	min. 20		
(2a)							350	5,7-5,9	500	13,7-13,9
							510-570	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to 1 rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
980	117,0 - 120,0 (114,0 - 123,0)	1020-1030*	-	-	-	-	-	-
Adjusting the idle-speed auxiliary spring					1100-1120=4mmRW		./.	

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0				ca. 17	350	6,7**	730	2,0-12,1
	X	=					100	min. 20	500	2,0-12,2
ca. 38	750-755	= 11,0				ca. 17	350	6,6-6,8	375	3,2-13,8
	780-790	= 4,9					355-415	= 2,0		
②a	900	= 0,3-1,7								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)						
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
730	96,0 - 98,0 (94,0 - 100,0)	750-755*			100	140 - 160		
					350	6,7 mm RW 4,5-4,7mmRW dispersion max.4 (6)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)						
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets
En

* 1 mm less control rod travel than col. 2

Test Specifications Distributor-type Fuel-injection Pumps

En

Testoil-ISO 4113

VE 4/10 F 2075 P 112

0 460 404 027

DHK 1 688 901 022

Fuel injection test tubing 6x2x450 mm

Overflow temperature 45° C

supersedes 5.84

company: Peugeot

engine: XD 2 S - USA

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	4,8-5,2 mm	0,8	
1.2 Supply-pump pressure	1500	5,4-6,0 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	1125	45,7-46,7 cm ³ /1000 strokes	0,8	
Full-load delivery without charge-air pressure	600	38,0-39,0 cm ³ /1000 strokes	0	2,5 (3,0)
1.4 Idle regulation	390	8,0-12,0 cm ³ /1000 strokes	0	2,5 (3,5)
1.5 Full-speed regulation	2400	10,5-16,5 cm ³ /1000 strokes	0,8	
1.6 Start	100	min. 53 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	-			

2. Test Specifications

checking values in brackets ()

	n = rev/min	600	1000	1500	2000
2.1 Timing device LDA 0,8 bar	mm	1,0-1,8(0,7-2,1)	2,7-3,3(2,3-3,7)	(4,3-5,7)	6,8-7,6 (6,5-7,9)
2.2 Supply pump LDA 0,8 bar	bar (kgf/cm ²)	400 1,6-2,2		2075 7,6-8,2	
Overflow delivery	n = rev/min cm ³ /10 s	500 (0 bar) 55-138 (40-153)		2075 (0,8 bar) 55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2450	max. 9,0	0,8
	2400	(9,5-17,5)	0,8
	2300	27,0-35,0 (27,0-35,0)	0,8
	2050	46,8-49,2 (45,7-50,3)	0,8
	1400	47,3-49,7 (46,2-50,8)	0,8
	1125	(43,9-48,5)	0,8
	750 *	42,7-43,7 (40,9-45,5)	0,25
600	(36,2-40,8)	0	
switch-off			
Idle stop	450-550	max. 1,0	
	390	(6,0-14,0)	
	680	min. 6.0 at 8.2 mm between idle screw and control lever	
End stop	630	min. 2.0 more than at 680 1/min	
	400	min. 50	
	500	max. 50	
2.4 Solenoid	cut-in voltage	min. 10 V	
		rated voltage 12 V.	

3. Dimensions

for assembly and adjustment mm

Designation	mm
K	3,3
KF	5,7-5,9
MS	0,9-1,1
SVS	2,3
XK	20,2-22,2
Xt	8,8-12,1

Observations
Check hydr. cold-start accelerator for operation:
Apply 12 V
500 1/min 2.2-3.4 mm (2.1-3.5)
* LDA stroke = 4.5 mm

Test Specifications Distributor-type Fuel-injection Pumps

VE 4/10 F 2125 R 112-1 Overflow temperature 45° C
0 460 404 028
DHK 1 688 901 022
Fuel injection test tubing 6x2x450 mm

supersedes 5.84
company: Peugeot
engine: XD 2 S

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting mm

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	4,8 - 5,2 mm	0,8	
1.2 Supply-pump pressure	1500	5,4 - 6,0 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	1125	45,7-46,7 cm ³ /1000 strokes	0,8	2,5 (3,0)
Full-load delivery without charge-air pressure	600	37,3-38,3 cm ³ /1000 strokes	0	
1.4 Idle regulation	390	8,0-12,0 cm ³ /1000 strokes	0	2,5 (3,5)
1.5 Full-speed regulation	2450	10,5-16,5 cm ³ /1000 strokes	0,8	
1.6 Start	100	min: 53,0 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	-			

2. Test Specifications

checking values in brackets ()

	n = rev/min	600	1000	1500	2000
2.1 Timing device LDA 0,8 bar	mm	1,0-1,8 (0,7-2,1)	2,7-3,3 (2,3-3,7)	(4,3-5,7)	6,8-7,6 (6,5-7,9)
2.2 Supply pump LDA 0,8 bar	n = rev/min bar (kgf/cm ²)	400 1,6-2,2		2075 7,6-8,2	
Overflow delivery	n = rev/min cm ³ /10 s	500 (0 bar) 55-138 (40-153)		2125 (0,8 bar) 55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2500	max. 9,0	0,8
	2450	(9,5-17,5)	0,8
	2350	26,5-32,5 (25,5-33,5)	0,8
	2050	46,8-49,2 (45,7-50,3)	0,8
	1400	47,3-49,7 (46,2-50,8)	0,8
	1125	(43,9-48,5)	0,8
	*750	42,7-43,7 (40,9-45,5)	0,25
	600	(36,2-40,8)	0
switch-off			
Idle stop	450-550	max. 1,0	
	390	(6,0-14,0)	
	680	min. 6.0 at 8.2 mm between idle screw and control lever	
End stop	630	min. 2.0 more than at 680 1/min	
	400	min. 50	
	500	max. 50	
2.4 Solenoid	cut-in voltage	min. 10 V	
		rated voltage 12 V.	

3. Dimensions

Designation	to Assembly and adjustment mm
K	3,3
KF	5,7-5,9
MS	0,9-1,1
SVS	2,3
K	20,2-22,2
L	8,9-12,2

Observations
Check hydr. cold-start accelerator for operation:
Apply 12 V
500 1/min 2,2-3,4 mm (2,1-3,5)
* LDA stroke = 4.5 mm

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 OMB 7,4 b 1

3. Edition
En

PES 6 A 90 D 410 RS 2502 RQV 250-1300 A B 1071 DL
Komb.-Nr. 0 400 846 442
1 - 5 - 3 - 6 - 2 - 4
0 -60 -120-180-240-300 $^{+0,5^{\circ}}$ ($^{+0,75^{\circ}}$)

supersedes 5.84
company: OMB
engine: 8360.05.300

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $^{2,15-2,25}$
($^{2,10-2,30}$) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	12,3+0,1	8,4 - 8,5	0,3(0,45)			
250	9,9-10,1	2,9 - 3,3	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 2a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min 10	mm 11
max.	1350	15,2-17,6	-	-	-	ca.21	100 250	min.11,5 9,9-10,1	200 570 930 1300	0,4-1,5 3,2-3,8 5,1-5,5 7,9
ca.62	11,3 4,0 1600	1340-1350 1465-1495 0 - 1,0				250-350 3a				

Torque control travel a = 0,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4a	Fuel delivery characteristics high idle speed 5b		Starting fuel delivery idle switching point 6		Torque-control travel 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1300	84,0 - 85,0 (82,0 - 87,0)	1340-1350 *	800 500	82,0 - 85,0 (79,5 - 87,5) 74,0 - 76,0 (71,5 - 78,5)	100	112,0-124,0 (109,0-127,0 = 16,0-16,6 mm RW	1300 500 800	12,3+0,1 12,5+0,1 12,4+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 8,3 k 6

En

1. Edition

PE 6 A 95 D 410 RS 2525
Komb.-Nr. 0 400 676 184

RSV 250-1200 A5C 2199-1 L

supersedes
company DAF
engine DHTD 825

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$
 $(1,95-2,15)$ mm (from BDG); RW = 7,5-10,5 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1000	12,6+0,1	10,9-11,1	0,35 (0,6)			
250	6,0-6,2	0,8-1,2	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 21	250	5,6	1000	12,6-12,7
	x =	4,3					100	min.19,5	400	12,8-12,9
ca. 55	11,6	1230-1240					250	6,0-6,2	300	13,0-13,5
(2a)	4,0	1325-1355					490-550=2,0			
	1490	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104 F)		6 Rotational speed limit Note changed to 1 rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 108,5-110,5 (106,5-112,5)	1230-1240*	LDA 600	0 bar 84,5-87,5 (82,0-90,0)	100	125,0-135,0 (122,0-138,0)		

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator DAF 8,3 k 6

Test at n = 1000 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting		Measurement		Control rod travel - diminution difference mm (1)
	Gauge pressure =	bar	Gauge pressure =	bar	
PE 6 A..RS 2525 + A5C 2199-1L	0,7		0,3 0,26 0		12,6-12,7 12,3-12,4 11,7-11,9 11,6-11,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

PES 4 A 90 D 410 RS 2548 RQV 300-1200 AB 1209 L
Komb.-Nr. 9 400 085 245

supersedes-
company: Fiat
engine: 8340.05
74,0 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$ (2,10-2,30) mm (from BDC) ; cyl. 1; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	12,0+0,1	7,8-7,9	0,3(0,5)			
300	8,1-8,3	0,7-1,1	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1200	15,2-17,8	-	-	-	ca. 22	100	min. 10,0	250	0,6-1,6
ca. 62	11,0	1240-1250				320-390	300	8,1-8,3	500	2,6-3,3
	4,0	1375-1405					630-680=	2,0	900	5,4-5,9
	1500	0-1,0							1300	8,6

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1200	77,5-78,5 (75,5-80,5)	1240-1250*	700	74,5-76,5 (72,0-79,0)	100	165,0-175,0	1200	12,0+0,1
			500	76,5-78,5 (74,0-81,0)			500	12,8+0,1
							700	12,3+0,2
							1000	12,0+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 CAS 8,3 d

1. Edition

En

PES 6 A 95 D 420 LS 2551
Komb.-Nr. 9 400 230 048

RSV 375-1100 A0B 2166 R

supersedes
company Case
engine A 504 BD

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,2-2,3$
($2,15-2,35$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
1100	10,5+0,1	7,6-7,8	0,3(0,45)			
375	7,7-7,9	1,5-2,1	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control lever deflection in degrees 7	Lower rated speed		③ torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 42 ②a			-	-	-	ca. 26	375	7,8	1100 700 600	10,5-10,6 11,8-12,1 12,2-12,3
							100 375 670-730	min.19,0 7,7-7,9 -2,0		
	9,5 4,0 2,0 1350	1130-1150 1230-1250 1280 0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational speed limitat Note changed to 1 rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	76,0-78,0 (74,0-80,0)	1130-1150*	700	85,0-91,0 (83,0-93,0)	100	130,0-150,0 bei RW 17,8 mm	0	-
			600	max. 94,0 (max. 98,0)	375	15,0-21,0		

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

BOSCH

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K23

K23

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 n 3

1. Edition

En

PE 6 A 90 D 320 RS 2577 RSV 250-750 A 7 C 2202 R
Komb.-NR. 0 400 676 179

supersedes -
company DAF
engine DT 615

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,2-2,3 \\ (2,15-2,35) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
750	11,0+0,1	7,5 - 7,7	0,4 (0,55)			
250	5,9-6,1	0,8 - 1,4	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 40			-	-	-	ca. 15	250	6,0	-	-
2a	10,0	770-780					100	min. 19,5		
	4,0	785-805					250	5,9-6,1		
	955	0,3-1,4					260-320	= 2,0**		

** Set idle-speed auxiliary spring at 2 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational speed limit Note changed to rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
750	75,0 - 77,0 (73,0 - 79,0)	770-780*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

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K24

K24

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 A 95 D 420 LS 2595 RQ 200/1100 AB 1094-1 R
Komb.-Nr. 0 400 846 514

supersedes 9.84
company RABA
engine D 2356 HM 6 U
162 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,3+0,1	12,1-12,3	0,3(0,6)			
200	6,4-6,6	0,8-1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRC check rev/min 1		Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3			Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Idle speed regulation Setting point rev/min 7		Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	Torque control rev/min 11		Control rod travel mm 12
550		19,2-20,8	550	20,0	10,3	1145-1160	200	6,0	100	min. 8,0	1100	11,3-11,4	500	11,9-12,0		
VH =		max. 46°			4,0	1175-1205			200	6,4-6,6	750	11,8-12,0	800	11,6-11,9		
									290-400	330=2,0						
										max. 1,0						

Torque-control travel on flyweight assembly dimension a = 0,3 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Control rod travel mm 7
1100	121,0-123,0 (119,0-125,0)	500	800	119,0-125,0 (116,5-127,5)	100	17,5-18,1
			500	max. 117,0 (max. 119,5)		

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

En

PE 12 A 90 D 521 RS 2648 RQV 325-1500 AB 1164 R

supersedes 9.84

Komb.-Nr. 0 400 650 002

company: Baudouin

engine: DF 12 AN,S
308 kW

1- 4- 9- 8- 5 - 2 - 11- 10- 3 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

Values apply to fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Start of delivery marking
mark cylinder 1 at 24° on
the timing device.

Port closing at prestroke

2,15-2,25
(2,10-2,30)

mm (from BDC)

Test ISO 4113

Rotational speed rev/min 1'	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1500	9,6-9,7	6,2-6,3	0,3(0,45)			
325	6,0-6,2	1,1-1,7	0,25(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 13	100 325	min.7,5 6,0-6,2	300 700 1100 1500	0,9-1,0 3,1-3,2 5,1-5,2 8,4
ca. 46	8,6 4,0 1700	1540-1550 1610-1640 0-1,0				31,5-46,0 ③a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1500	61,5-62,5 (59,5-64,5)	1540-1550*	-	-	100	113,0-123,0 (110,0-126,0) =19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 A 95 D 410 RS 2679
Komb.-Nr. 0 400 846 529

RQ 200/1100 AB 860-1 L

supersedes
company DAEWOO
engine D 2156 MT
169 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,95-2,05$ mm (from BDC) RW = 19,5-21,0 mm
(1,90-2,10)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,5+0,1	12,7-12,9	0,35(0,6)			
200	5,9-6,1	1,2-1,8	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications Control rod travel mm 5		rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
600	19,2-20,8	600	20,0	9,5	1145-1160	200	6,0	100	min.7,3	1100	10,5-10,6							600	10,7-10,8				
VH = max. 46°				4,0	1180-1210			200	5,9-6,1	1025	10,6-10,8							310-350=2,0					

Torque-control travel on flyweight assembly dimension a = 0,10 mm Speed regulation: A1 1145-1160 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/mm 7	
LDA 1100	0,7 bar 127,0-129,0 (125,0-131,0)					LDA 800	0,7 bar 130,5-133,5 (128,0-136,0)	100	179,0-189,0 (176,0-192,0)				
						LUA 500	0 bar 81,5-83,5 (79,5-85,5)						

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DA0 9,7 a 1

Test at n = 500 rev/min ^{decreasing} pressure - in bar gauge pressure _{increasing}

Pump/governor	Setting	Measurement	Control rod travel ^{diminution} difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2679 + AB 860-1 L	0,7	0	10,8-10,9
		0,29	8,8-9,0
		0,24	10,1-10,2
			9,2-9,4

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

PES 4 A 100 D 410 RS 2686 RQV 400-1000 AB 1203 L
Komb.-Nr. 0 400 844 085

supersedes 1.04
company: Liebherr
engine: D 904 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,7-2,8 \\ (2,65-2,85) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	11,4+0,1	11,9-12,1	0,35(0,6)			
400	5,9-6,1	1,0-1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min mm 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min mm 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1070	15,2-17,8	-	-	-	ca. 11	100 400	min. 7,5 5,9-6,1	375 600 1000 1150	1,0-1,1 3,7-4,0 7,5-7,6 9,9
ca. 62	10,4 4,0 1250	1040-1050 1105-1135 0 - 1,0				420-530				

Torque control travel a = 1,40 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 119,0-121,0 (117,0-123,0)	1040-1050*	LDA 700	0,7 bar 128,5-131,5 (126,0-134,0)	100	19,5-21,0 mm RW	1000 500 900 700	11,4+0,1 12,8+0,1 11,7+0,2 12,5+0,2
			LDA 500	0 bar 87,5-90,5 (85,5-92,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

LIE 5,6 b

Test at n = 500 rev/min ^{decreasing} pressure - in bar gauge pressure _{increasing}

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 4 A .. RS 2686 +RQV .. AB 1203 L	0,70	0 0,40 0,33	12,8-12,9 10,4-10,5 11,8-11,9 10,6-10,8

Notes

(1) when n = rev/min and gauge pressure = bar (- maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 A 95 D 320 RS 2693 RQ 300/1300 AB 1204 R
Komb.-Nr. 0 400 846 538

supersedes _
company: DAF
engine: DNT 620
130 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC) RW = 7,5-10,5 mm
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	11,5±0,1	7,6-7,8	0,35(0,6)			
300	6,4-6,5	0,7-1,1	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 5		rev/min 6		Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		rev/min 11		Control rod travel mm 12	
850	19,2-20,8	850	20,0	10,0	1350-1365	300	6,2	100	min.7,2	1290	11,0-11,1							850	12,4-12,6				
VH = max. 46°				4,0	1420-1450			300	6,1-6,3	935	12,1-12,3							1080	11,3-11,6				
								520-560=2,0		1080	11,3-11,6												

Torque-control travel on flyweight assembly dimension a = 0,57 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/mm Control rod travel 7	
LDA 850	0,7 bar 76,0-78,0 (74,0-80,0)	-		LDA 1290	0,7 bar 75,5-78,5 (73,0-81,0)	100	135,0-145,0 (132,0-148,0)			300	7,0-11,0 (4,5-13,5)		
				LDA 600	0 bar 65,0-67,0 (63,0-69,0)								

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 6,2 p 2

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 A..RS 2693 + AB 1204 R	0,7	0 0,25	11,5-11,6 11,2-11,4 11,4-11,5

Notes

(1) when n :

rev/min and
gauge pressure =

bar (- maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 o 2
1. Edition

En

PES 6 A 95 D 320 RS 2693
Komb.-Nr. 0 400 876 332

RSV 300-1300 A 0 C 2206 R

supersedes
company DAF
engine DNT D 620

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDP) RW = 7,5 - 10,5 mm
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	10,8+0,1	6,4 - 6,6	0,35 (0,6)			
300	6,1-6,3	0,6 - 1,2	0,35 (0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2		Intermediate rated speed 4 5 6			4 Control-lever deflection in degrees 7	Lower rated speed rev/min 8		Control rod travel mm 9		3 Torque control rev/min 10	Control rod travel mm 11
	mm	mm rev/min					rev/min	mm	rev/min	mm		
loose	800	0,3-0,7	-	-	-	ca. 28	300	5,7	1290	10,2-10,4		
		X = 5,5					100	min. 19,5	500	10,8-10,9		
ca. 57	9,2	1340-1350					300	6,1-6,3	1005	10,5-10,7		
2a	4,0	1430-1460					600	660=2,0				
	1570	0,3-1,4										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		cm ³ /1000 strokes 2		6 Rotational-speed limit Note changed to) rev/min .. 3		3a Fuel delivery characteristics rev/min 4		cm ³ /1000 strokes 5		Starting fuel delivery Idle rev/min 6		cm ³ /1000 strokes 7		5 Idle stop rev/min 8		Control rod travel mm 9	
850	64,0 - 66,0 (62,0 - 68,0)					1290	69,0 - 71,0 (66,5 - 73,5)			100	125,0-135,0 (122,0-138,0)			-			
										300	6,0-12,0 (3,5-14,5)						

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

BOSCH

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Test Specifications Fuel Injection Pumps and Governors

En

PES 6 A 95 D 320 RS 2693 Z
Komb.-Nr. 0 400 846 537

RQ 300/1300 AB 1204 R

supersedes
DAF
company DNS 620
engine 150 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

^{2,0-2,1}
(1,95-2,15)

mm (from BDC) RW = 7,5-10,5 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 5
850	12,4+0,1	9,0-9,2	0,35(0,6)			
300	6,4-6,6	0,7-1,1	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
820	19,2-20,8	820	20,0	10,6 4,0	1343-1358 1425-1450	300	6,2	100 300 520-560=2,0	min.7,3 6,1-6,3 2,0	1290 850 965 1060	11,7-11,9 13,1-13,3 12,7-12,9 12,3-12,5
VH = max. 46°											

Torque control travel on flyweight assembly dimension a **0,57** mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 2	cm ³ /1000 strokes	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
LDA 850	0,7 bar 90,0-92,0 (88,0-94,0)	-	LDA 1290	0,7 bar 87,0-90,0 (84,5-92,5)	100	135,0-145,0 (132,0-148,0)
			LDA 600	0 bar 65,0-67,0 (63,0-69,0)	300	7,0-11,0 (4,5-13,5)

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator DAF 6,2 p 1

Test at n = 600 rev/min ^{decreasing} pressure - in bar gauge pressure
_{increasing}

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2693 Z + AB 1204 R	0,7	0	12,4-12,5
		0,31	11,2-11,4
		0,25	12,1-12,2
			11,2-11,4

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 o 1

1. Edition

En

PES 6 A 95 D 320 RS 2693 Z
Komb.-Nr. 0 400 876 333

RSV 300-1300 AOC 2195 R

supersedes
company DAF
engine DNT 620

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$
(1,95-2,15) mm (from BDG); RW = 7,5-10,5 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	12,4+0,1	9,0-9,2	0,35 (0,6)			
300	6,1-6,3	0,6-1,2	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9		
loose	800	0,3-0,7				ca. 28	300	5,7	1290	11,6-11,8
		x = 5,8					100	min. 19,5	500	12,4-12,5
ca. 59	10,6	1340-1350					300	6,1-6,3	1040	12,0-12,2
2a	4,0	1425-1455					575-635	=2,0		
	1595	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to .) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 850	0,7 bar 90,0-92,0 (88,0-94,0)		LDA 1290	0,7 bar 85,0-87,0 (82,5-89,5)	100	125,0-135,0 (122,0-138,0)		
			LDA 600	0 bar 65,0-67,0 (63,0-69,0)	300	6,0-12,0 (3,5-14,5)		

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

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D. Adjustment Test for Manifold Pressure Compensator DAF 6,2 0 1

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	mm (1) diminution difference
PES 6 A..RS 2693 Z + AOC 2195 R	0,7	0	12,4-12,5
		0,31	11,1-11,2
		0,25	12,1-12,2
			11,5-11,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

Testoil-ISO 4113

PES 6 MW 100/320 RS 1119
RQV 300-1400 MW 57
0 403 446 152

supercedes -
company: Volvo
engine: TD 61-3012
132 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,00-3,10}{(2,95-3,15)}$ mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	11,6+0,1	9,0-9,2	0,35 (0,6)			
300	6,5-6,6	1,2-1,6	0,35 (0,5)			
1000	10,3+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1480 1725	15,2-17,8 0,1-1,0				ca. 16	300 100	6,5-6,6 min.8,1		
ca. 62	10,6 4,0	1440-1450 1595-1625								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 90,0-92,0 (88,0-94,0)	1440-1450*	LDA 1000	0 bar 75,0-77,0 (73,0-79,0)	100 300	140-160 (137-163) 12,0-16,0 (9,5-18,5)		

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 550 rev/min decreasing pressure - in bar gauge pressure
 increasing

Testoil-ISO 4113

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure : bar	Gauge pressure : bar	mm (1)
RS 1119 with MW 57	0,22	0,33 0 0,70	10,5-10,6 11,2-11,5 10,3-10,4 11,6-11,7

Notes:
 (1) when n = rev/min and gauge pressure : bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

Testoil-ISO 4113

PES 6 MW 100/320 RS 1119-1
RQV 300-1400 MW 57-1
O 403 446 153

supersedes -
company: Volvo
engine: TD 61.3012
150 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,00-3,10$ mm (from BDC) $9,0-12,0$ mm RW
 $(2,95-3,15)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,0+0,1	10,5-10,7	0,35 (0,6)			
300	6,0-6,1	1,2-1,6	0,35 (0,55)			
1000	10,1+0,1		0,35 (0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1480 1700	15,2-17,8 0-1,0				ca. 13	300 100	6,0-6,1 min.7,6		
ca. 61	11,0 4,0	1440-1450 1590-1620								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 105,0-107,0 (103,0-109,0)	1440-1450*	LDA 1000	0 bar 75,0-77,0 (73,0-79,0)	100 300	140,0-160,0 (137,0-163,0) 12,0-16,0 (9,5-18,5)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 550 rev/min decreasing pressure - in bar gauge pressure
 increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
RS 1119-1 with RQV..MW 57-1	0,16	0,33 0 0,70	10,5-10,6 11,7-12,0 10,1-10,2 12,0-12,1

Notes

(1) when n =

rev/min and
gauge pressure =

bar (- maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 6,1 f

1. Edition

En

Testoil-ISO 4113

PES 6 MW 100/320 RS 1119
RQV 300-1400 MW 58
0 403 446 151

supersedes -
company: Volvo
engine: TD 61.3012
113 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,00-3,10 \\ (2,95-3,15) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	10,4+0,1	8,0-8,2	0,35(0,6)			
300	6,1-6,2	1,2-1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1480 1680	15,2-17,8 0-1,0				ca. 13	300 100	6,1-6,2 min.7,8		
ca. 60	9,4 4,0	1440-1450 1565-1595								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1000	80,0-82,0 (78,0-84,0)	1440-1450*			100	19-21 mm RW 140,0-160,0 (137-163)		
					300	12,0-16,0 (9,5-18,5)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 40,5c1

3. Edition

En

Testoil-ISO 4113

PE 8 P 120 A 920/5 RS 293 RSUV 300-750 P 9 A 350
 Komb.-Nr. 0 401 878 105
 1 - 6 - 4 - 5 - 8 - 3 - 2 - 7
 0 -75 -90 -120-210-225-315-345- + 0,50(0,75)

supersedes 8.80
 company:
 engine: KHD
 BA 16 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,00-2,10 \\ (1,95-2,15) \end{matrix}$ mm (from BDC) Port closing mark cyl.1

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	10,8+0,1	16,5-16,9 (16,2-17,2)	0,5(0,9)			
300	6,3-6,5	2,2 - 2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca.26	300	5,9	750	10,8-10,9
	X =	4,0					300	6,3-6,5	400	10,8-10,9
							335-395	=2,0	325	11,7-12,3
⑤ ca.61	790-800=9,8									
	810-840=4,0									
	975=0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
Test value on request		790-800*	-	-	100	19,5-21,0 mm RW	300	6,4

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 120 A 320 RS 415-1 RQ 250/1000 PA 417-4
Komb.-Nr. 0 401 846 511
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes:
company: DAF
engine: DKZ 1160

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,5+0,1	20,6-20,8	0,5(0,9)			
250	6,7-6,9	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16,0	11,5 4,0 1250	1035-1050 1090-1120 0-1,0	250	6,5	100 250 445-485=2,0	min.7,4 6,4-6,6	850 990	12,7-12,8 12,6-12,8

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1035-1050 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm Control rod travel 7
LDA 850	0,7 bar 206,0-208,0 (203,0-211,0)	-	LDA 600	0 bar 140,0-142,0 (137,0-145,0)	100	305,0-345,0 (305,0-345,0)

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator DAF 11,6 y 2

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 6 P..RS 415-1 + RQ..PA 417-4	0,7	0 0,34 0,28	12,5-12,6 10,3-10,5 11,8-11,9 10,6-11,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 120 A 320 RS 415-1 RQ 250/900 PA 754
 Komb.-Nr. 0 401 846 510
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes-
 company: DAF
 engine: DKX 1160 E

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9} (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
875	11,0+0,1	17,1-17,3	0,5(0,9)			
250	6,7-6,9	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ④				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
850	14,1-14,9	850	14,5	10,0 4,0 1150	925-940 995-1025 0-1,0	250	6,5	100 250 445-485=2,0	min.7,4 6,4-6,6 2,0	875 600 735 775	11,0-11,1 11,8-11,9 11,4-11,6 11,2-11,4

Torque-control travel on flyweight assembly dimension a = 0,50 mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 875	0,7 bar 171,0-173,0 (168,0-176,0)	-	LDA 600	0,7 bar 1/2,0-178,0 (169,0-181,0)	100	305,0-345,0 (301,0-349,0)
			LDA 600	0 bar 140,0-142,0 (137,0-145,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 415-1 with RQ..PA 754	0,7	0 0,30 0,25	11,6-11,7 10,3-10,5 11,1-11,2 10,4-10,7

Notes

(1) when n =

rev/min and
gauge pressure

bar (= maximum full-load control rod travel)